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A HISTORY OF THE AMERICAN WHALE FISHERY

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PREFACE.

Whaling was once a great industry in the United States. Whole communities were dependent on its success. When voyages were successful there was prosperity and plenty. When voyages failed there was hardship and hunger. Fortunes were made and lost. The foundation of many a stately old mansion in New England rests on "oil and bone." But whaling was not a passing boom, not a thing apart from all other interests, not local in nature and local in effect. Its influence as a social and economic factor was widespread. Whaling was a unit in a great whole—a part of the vast industrial interests of a growing country. It is so no longer. Whaling is practically dead. The almost complete cycle of whaling activity is a good lesson in economics—the lesson of a flourishing enterprise quickly wiped out by changing economic conditions. The history of whaling forms an important chapter in the commercial history of the United States.

The history of the American whale fishery, however, is not an untried field. From time to time discussions of different phases or periods in the development of the fishery have appeared in print. But there seems still to be a field for further work along much the same lines. On the whole these previous works on the whaling industry are incomplete—incomplete as regards both time and treatment. The most recent history was published in 1876, but the discussion of the years subsequent to 1815 is unfinished. Furthermore none of the

authors have accorded whaling its proper significance as a factor in commercial development. The histories have been chronicles instead of interpretations.

The present history of the American whale fishery aims to give a comprehensive idea of its origin and growth from colonial times to the present, emphasizing the economic aspects. A chapter on the origin of whaling in Europe, which may seem not to belong here, has been introduced at the outset as a background for our own early colonial efforts. The subsequent chapters deal solely with the ups and downs of the American fishery, and they attempt to give an intelligent interpretation of the conditions inducing prosperity or depression in this rather typical New England industry. The chapters on the "Rise of Pacific Whaling," the "Decline of American Whaling" and "Whaling Products in Commerce," will prove the most interesting and most valuable to the economist or the student of trade and industrial conditions. Appendix I will be found to give practically all of the available statistics relating to the whale fishery during the last century. Most of these tables have never before appeared in print, being compilations and combinations from a variety of sources. Appendix II gives a rather full list of references to books and articles about whaling. A critical analysis of the most important will be found in the introductory chapter.

Much valuable information and important data have been obtained from a wide range of sources, to which reference has been made in every case. I am indebted to the Carnegie Institution of Washington, D. C., for aid received in preparing this volume. I also owe thanks to Professor Emory R. Johnson, of the Uni-

versity of Pennsylvania, who has kindly read the manuscript and offered helpful suggestions and criticisms; to Mr. George R. Phillips, editor of the "Whalemen's Shipping List," and especially to Mr. George H. Tripp, Librarian of the New Bedford Public Library, and his assistants, for their unfailing courtesy and readiness to aid in facilitating my work.

WALTER S. TOWER.

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CHAPTER I.

Introductory Chapter.

Like many other branches of industry in America, the whale fishery has received much attention in the literature of the country. Narrative writing, histories of localities, histories of the fisheries, and magazine articles, have found a fruitful theme in recounting one phase or another of this strange industry. But, strange as it may seem, there is practically no complete history of the whale fishery in existence. It seems appropriate, therefore, to introduce here a somewhat detailed analysis or critical survey of the most important literature on the subject.

In the bibliography, which appears as Appendix II of this volume, a certain number of works by different authors are classed as standard references; that is, the principal books dealing with the subject of the whale fishery. To discuss the different works in chronological order will be simplest.

The first important work to be noted is that by William Scoresby, entitled "An Account of the Arctic Regions," dated 1820. Scoresby was an English naval officer, and in his discussion of the whale fishery he deals solely with the European, and principally the British, industries. By far the most valuable part of this history is the complete and detailed treatment of the origin and early development of whaling. Scoresby seems to have covered the original sources with a great deal of exactness

and in most cases he cites the authority for, or the source of, his facts. So far as could be determined Scoresby furnishes the only available English account of this phase of whaling. From him has been drawn almost all of the first chapter in the following history. Several American writers have touched upon the same phase of whaling history, but, one and all, they have drawn their material from this same source. Scoresby's book is a classic as regards the early history of whaling, and in addition it gives a very good outline of the principal European fisheries up to the second decade of the nineteenth century.

Macy, the historian of Nantucket, wrote a history of his native island up to the year 1836, which is a valuable source of information concerning the early development of whaling in this country. Almost until the time Macy wrote, Nantucket was the leader in the whale fishery, so that whatever he records takes on a double value. From the very nature of the book, a general history of the whole island, the references to whaling are necessarily scattered. But the fishing was so important to the islanders that a fairly connected history of it at that place is more or less constantly interwoven with the rest.

The "History of Nantucket," by Macy, is one of the few important original sources in the history of the whale fishery. A large part of the facts presented are the result of years of personal observation and experience on the ground. Much of the rest was obtained from local records. The fact that many of these records have since been destroyed by fire makes Macy's book practically the only good source of information concerning the Nantucket fishery. The book also gives an intensely interesting portrayal of the conditions in a community dependent on a single industry—and that industry as full of ups and downs as was the whale

fishery. Nowhere else in the literature is there a more vivid account of the way in which a people's environment literally forced them to a particular industry, and how that industry shaped and modified social and economic conditions. As a real interpretation of the whale fishery, Macy's book stands practically alone.

The "History of New Bedford," by Daniel Ricketson, is unfortunately not so valuable as Macy's history, in its discussion of the whale fishery. New Bedford was a greater whaling port than Nantucket ever was, but Ricketson seems to have given the industry relatively less attention. This fact is particularly to be regretted, because, as in the case of Nantucket, many of the New Bedford records were destroyed by fire. Ricketson gives many interesting and valuable facts concerning the local industry, but there is little beyond that—practically nothing, in fact, to give much suggestion about the industry as a whole.

In the decade between 1870 and 1880 there were printed the only histories of whaling which have appeared in this country. They were: the "Report on the Principal Fisheries of the American Seas," by Lorenzo Sabine; the "Marine Mammals of the Northwestern Coast of North America, with an Account of the American Whale Fishery," by Scammon; and, finally, Alexander Starbuck's "History of the American Whale Fishery from its Earliest Inception to the year 1876."

Sabine's work needs little mention since it is neither as complete nor as thorough as the other two. Scammon, on the other hand, gives a fairly good portrayal of certain phases of the subject. In the first part of his book Scammon devotes himself almost entirely to the natural history of the whales, the different species, their characteristics, distribution and relative values. The more valuable part of the discussion is that part dealing with the Pacific whale fishery, to which branch of the industry Scammon gives most of his attention. Nowhere else is

there such a complete statement of the origin and development of the fishery on the west coast. The accounts of shore and "between season" whaling are especially valuable and at the same time very interesting reading. Scammon's work is essentially the statement of the conditions of the western fishery rather than in the nature of a history of the whaling industry.

Alexander Starbuck may be said to be practically the only one who has written an actual history of the whale fishery. His book was published in 1876 under the title, "History of the American Whale Fishery from its Earliest Inception to the year 1876." The title, however, is somewhat pretentious, since in several ways the history is rather incomplete. But whatever its limitations, Starbuck's work is now, and always must be, the classic treatise on the American whale fishery. The many references to Starbuck in the following chapters will show how frequently he has been drawn on for facts. Starbuck has been accused more than once of being inaccurate and unreliable. But if these accusations are true they must be founded on minor points. In the use of the book there was ample opportunity to judge of its value. In most important questions the authority or source is stated. Whenever possible these were verified before being accepted for this present history, and almost without exception they were found to be correct.

The most valuable part of Starbuck's work is in his history of the fishery in colonial times. This part of the work is the most thorough and the most complete, though in many places the general arrangement of topics makes it rather difficult to follow the real course of development. Starbuck drew quite extensively from Macy, and in most cases he acknowledges the fact. But in other cases, Macy was unmistakably the original source though no reference is made to that author. In some cases, also, Macy's full presentation conveys a

better, if not a somewhat different, impression from that gained in reading Starbuck's adaptation of it. That, however, is a rather unimportant matter, but for an authority it is best to use Macy directly wherever possible, rather than to use Starbuck's more recent work.

In the chapters covering the period from the beginning of whaling by the early colonists, down to the end of the war of 1812, Starbuck's history is generally serviceable and satisfactory. But the history of whaling subsequent to 1815 is by no means as adequately treated. There is no clear statement of the conditions underlying the great growth of whaling interests from 1825 onward, in fact, there is very little said about the growth itself. Starbuck touches on some of the important causes which started the decline of whaling and there he stops. In a book of nearly 800 pages, about 170 odd pages are given up to the historical discussion, and the rest is devoted to lists of clearances, entries and cargoes, of the individual vessels from 1784 to 1876. These records are valuable in a way, but not sufficiently important to deserve so much space when the history of the industry itself was left unfinished.

Three rather serious defects appear in Starbuck's work: (1) the fact, already noted, that the period from 1825 to 1860 receives but little attention in spite of the fact that it was the most important era in the whole history of whaling. Why Starbuck did not discuss it clearly is hard to understand. (2) He places no emphasis whatever on the commercial and economic aspects of the industry. In fact, he scarcely mentions the development of trade in whale products. Yet the whale fishery was one of the most important of the New England fisheries and its products formed a large part of the country's export trade during the early days of whaling. (3) And finally, from his more or less irregular arrangement of topics it is rather difficult to trace the growth of whaling interests. Starbuck's work was

the best of its time, but it unquestionably left the field open for a more thoroughly analytical discussion of the whale fishery, especially in its economic relations.

It was stated that the works of Sabine, Scammon and Starbuck were the only histories of whaling. The great work on the "Fisheries and Fishing Industries of the United States," compiled under the direction of G. Brown Goode, in 1884, contains a history of whaling. But in most respects it added practically nothing to what had been done by Scammon and Starbuck. Page after page are quoted directly from these two authors, without going beyond what they wrote. Hence there is essentially the same incomplete treatment of important periods and important aspects of the industry.

This report is, however, very valuable in one respect, that is, in its description of apparatus and methods of capture. Scammon discussed that phase somewhat and Starbuck touches it incidentally in a number of places. But Goode's compilation gives a very exhaustive account of apparatus, boats, methods of capture, and securing and preparing the products. On this phase of the subject Goode is by far the best authority up to 1884.

So much for the few works which have dealt with the history of whaling. Only one other source needs special mention, that is the "Whalemen's Shipping List and Merchants' Transcript," a trade journal published in New Bedford, Mass., since 1843. The "Shipping List" began as a mere monthly transcript of clearances, entries and cargoes—a small octavo pamphlet. Later on it more than doubled in size and was enlarged to a quarto magazine, issued every week, which included important discussions concerning the fishery. It is still issued weekly, but it is now only a single sheet, the most eloquent expression of the decline of whaling. The "Shipping List" is without question the best single source of information regarding the condition of the industry since 1845. Its

files are a veritable mine of valuable facts and suggestions. Its publication of statistics concerning the whale fishery is alone ample justification for its existence. So far as is known the New Bedford Public Library is the only library having a complete file.

CHAPTER II.

The Origin of Whaling.

A little over a half century ago the whale fishery was one of the most prosperous and profitable industries of Southern New England. The arrival and departure of whaling vessels were everyday events at New Bedford, then the greatest of all whaling ports. Now the coming of a schooner full laden, from a short successful voyage causes a flurry of comment as an unusual occurrence, and the older generation recalls the days when whaling was in its prime. The exciting stories of voyages, of shipwreck, fierce encounters with whales, hairbreadth escapes, as well as the more prosaic question of profits and losses no longer furnish an important topic of conversation as they did in the younger days of our fathers and grandfathers in many a New England town. Within the history of this country whaling has risen, passed its zenith and has now nearly sunk below the horizon of industrial importance. Few industries offer an opportunity for such a complete study of the rise and decline. No other industry's history presents a more interesting story.

It is a common thing to find, when whaling is mentioned, that many persons look upon it as having been what might almost be called an American monopoly, doing business mainly from New England ports. But about the middle of the seventeenth century, when the Massachusetts settlers were making their first attempt in the capture of whales, the Biscay fishermen had already extensively engaged in the whale fishery. The Dutch and English had followed their examples. The

Russia or Muscovy Company, of English merchant adventurers, had succeeded in obtaining a royal charter granting them a monopoly of whaling, and other maritime nations of Europe had turned their attention to this new enterprise of capturing whales in the northern seas. It seems appropriate, therefore, in a history of the American whale fishery to trace briefly the origin and earlier history of the industry in other countries, for the sake of making clear whatever inter-relationship there may be.

Most historians give the Biscayans the credit of being the first to succeed in capturing whales, the date of their operations being generally set as about 1575. It is hard to tell, however, whether this Bay of Biscay enterprise was the first regular whaling industry, for references to the capture and killing of whales may be traced as far back at least as the latter part of the ninth century.[1]

Probably the earliest authenticated account of a fishery for whales is referred to by Hakluyt.[2] Ohthere, a native of Halgoland, undertook a voyage to the north about 890 A. D., skirting the coast of Norway to the entrance of the White Sea, until "he was come as far toward the north as commonly the whale hunters used to travel."[3]

The fishery referred to was one carried on supposedly by the Norwegians at that time, but the importance of their industry is not known.

The Normans, in their invasions of France may have carried with them the methods of harpooning and capturing whales. It is possible, however, that the Biscayans may have known these arts before the Normans

[1] Most of the following references to whaling previous to 1000 are drawn from Scoresby: "A Voyage to the Arctic, and an Account of the Northern Whale Fishery." [Scoresby states (note, p. 10) that a work by S. J. B. Noel, "Mémoire sur l'Antiquité de la Pêche de la Baleine par les Nations Européannes," Paris, 1795, is the best authority on ancient whale fisheries.]

[2] Hakluyt: "Voyages" Vol. 1, p. 4.

[3] *loc. cit.*

came, for the French were undoubtedly acquainted with the business at a very early date. Thus, in a book entitled "Translation et des Miracles de Saint Vaast," published about 875, mention is made of whale fishing on the French coast; and in another book "Vie de Saint Arnould Evêque de Soissons," printed in the eleventh century, there is an account of a miracle performed by the saint in helping to capture an escaping whale, in which particular mention is made of the fishery with the harpoon.[4] About the same time William the Conqueror gave the Convent of the Holy Trinity of Caen a tithe of the whales captured at or brought to Dive.[5] This fact, with other similar entries in the records, indicate that a more or less regular whale fishery was then carried on near the coasts of Normandy and Flanders. A French manuscript of the thirteenth century makes mention of whale's flesh being used for food. The great D'Aussy, in his work "La vie privée des Français," makes it appear that the flesh, and particularly the tongue, was sold in the public markets of Bayonne, Cibourre and Béariz, and that it was regarded as a delicacy.[6] It is supposed that the whales were taken along the coast and that the flesh was therefore sold in a fresh state. But whether whaling was a regular industry is uncertain.

A Danish work, supposed to have been written about the middle of the twelfth century, states that the Icelanders were in the habit of pursuing whales and that they lived on the flesh of some one of the species.[7]

It is not clear whether the English made any very early attempts at actual whaling, the first references to whales appearing in the fourteenth century. At that time Edward III of England, had a revenue of £6 sterling

[4] Scoresby, p. 12.
[5] Scoresby, p. 13.
[6] Scoresby, p. 14.
[7] Scoresby, p. 11

on every whale taken and brought into the French port, Béariz. By 1338 this revenue was important enough to be the subject of a petition by the English admiral stationed at Bayonne, and it was awarded to him in consideration of his naval services.[8] By a royal act in 1315 Edward II had reserved for himself the rights to all whales cast by chance on the shore, and two centuries later Henry IV gave the Church at Rochester the tithe of whales taken along the shore of that bishopric.[9] But these and the other early English references, so few in number, all leave doubt whether the whales referred to were pursued and killed in the open sea, or were merely those accidentally run on shore.

Thus, up to the sixteenth century, the Norwegians, French, Icelanders and English had in some degree turned their attention to the revenue to be derived from whales. Any estimation of the importance of the whale fishery among these nations during the early period is purely conjecture. About all the records show is that the taking and utilization of whales was a common practice at least among these four European nations, and that the industry was apparently conducted on the largest scale by the French. Certain it is that the Biscayans, both French and Spanish, were the most distinguished whalemen during the sixteenth century.

The Bay of Biscay fishery depended on a kind of "fin whales" which were in the habit of frequenting the bay at certain seasons of the year. When their capture developed into a more regular industry, however, the whales became shy and less abundant. The whalers, desiring a more constant fishery than the brief season in the bay, and being good sailors, pursued the whales into the open sea. Before the end of the sixteenth century, these Biscayans, following in the track of Sebastian Cabot, had extended their voyages as far

[8] Scoresby, p. 14.

[9] Scoresby, p. 15–16.

west as the Banks of Newfoundland, touching Iceland and Greenland on the way. From Gosnold's journal of his voyage in 1602 it is also probable that they cruised southward along the New England coast.[10] It is impossible to say what proportions the Biscayan industry ever assumed, though it is unquestioned that the Biscay whalers were the mainstays of many of the whaling fleets of Europe for a long time after whaling became an important industry. The Icelanders, with whom the Biscayans came in contact, were attracted by the prospect of a new branch of commerce. They fitted out vessels, and uniting their energies with those of the Biscayans, carried on such an extensive fishery that toward the end of the sixteenth century the number of vessels employed by the united nations amounted to fifty or sixty sail annually.[11] As late as 1721 twenty ships were sent out on whaling voyages from different ports in the Bay of Biscay, but toward the latter part of the eighteenth century the occupation appears to have been totally abandoned.[12]

The French in general had greatly neglected the whale fishery during the seventeenth century. In 1784 they attempted to revive it, fitting out ships at Dunkirk and offering inducements for Nantucket whalemen to remove to that place, but before the project was well begun it was interrupted by the French Revolution and whaling as a French enterprise was practically abandoned.

After the French, the English were the next important nation to embark in the whaling industry. The first English attempt of which there is any satisfactory account, was made in 1594, when ships were fitted out for Cape Breton, at the mouth of the St. Lawrence, part of the vessels were to engage in hunting the walrus,

[10] Ricketson: History of New Bedford, p. 56.

[11] Scoresby, p. 18.

[12] Scoresby, p. 163.

the rest in the whale fishery. One of the vessels carried home a large quantity of whalebone, which had been cast up from the wreck of two large Biscay fishermen in St. George's Bay. This bone was probably the first, at least the first recorded, importation of whalebone into England.[13]

It was the Spitzbergen fishery, however, which attracted most of the English ventures, this northern fishery growing out of the attempts to discover a northeast passage to China and from the trading of the Russia Company to Moscow by way of the White Sea and Archangel. The discovery of the Greenland grounds followed that of Spitzbergen as a natural outcome of the spirit of adventure of the time. The merchants of Hull fitted out whaling vessels as early as 1598, continuing regularly for several years, on the coasts of Iceland, near North Cape, and about Spitzbergen after its rediscovery by Hudson in 1607. In that short time the whale fishery, as Scoresby says,[14] "proved the most lucrative and most important branch of national commerce, which had ever been offered to the industry of man." The English, however, had but little opportunity to reap benefit from this trade before other nations appeared as competitors.

Whaling was a novel enterprise in the commercial world at the opening of the seventeenth century. It was practical and easy because the whales were found in abundance in convenient places, and the fishery was expected to enrich the adventurers far beyond any other branch of trade then carried on. It inevitably drew the attention of all the commercial people of Europe. Scarcely had the English established themselves in the Spitzbergen fishery before they were followed by the Dutch, Spanish, French, Danes and Hamburg merchants.[15]

[13] Scoresby, p. 18.
[14] p. 19.
[15] Scoresby, p. 100.

In 1612 the vessels of the Russia Company met off Spitzbergen one Dutch and one Spanish ship from Biscay, fitted for whaling. The Dutch vessel was driven off, thus marking the beginning of a long struggle between the two nations for possession of this much desired trade. The next year, 1613, to protect itself from these invaders, the Russia Company secured a royal monopoly of the fishery. By this charter all other persons, whether Englishmen or foreigners, were excluded from participation therein. The company prepared for an armed enforcement of the monopoly. Again Dutch and Spanish vessels were encountered with the addition of some French,[16] all of which were attacked and either driven away or allowed to leave in peace on giving up all or part of the cargoes they had secured. The conflicts, however, consumed much of the whaling season, and in spite of the levies made on the foreign vessels the venture ended in a financial loss for the company.

These conditions of rivalry, sometimes peaceable, sometimes resulting in actual conflict and bloodshed, continued until about 1619, when a conference was held to adjust the differences. The English, Dutch and Danes each claimed exclusive right to the fishery—the first two basing their claim on priority of discovery, the last on the supposition that Spitzbergen was a part of Greenland. The coast of Spitzbergen is very irregular, making many bays and harbors all of which were largely resorted to by whales. It was finally agreed that these bays and harbors were to be divided among the different nations and were to be considered the sole possessions of those to whom they were allotted.[17] These arrangements having been adopted, whaling was carried on more peacefully, each nation, including English, Dutch, Danes, Hamburgers and Biscayans carrying on the

[16] Scoresby, p. 25–26.

[17] Scoresby, p. 36.

fishery exclusively in its own possession or along the sea coast, which was free for all.[18]

After the division of the whaling grounds the Dutch prosecuted their fishery with perseverance and profit. They were successfully imitated by the Hamburg merchants and by other Elbe fishermen. But the English made only occasional voyages. Sometimes the Russia Company and sometimes London merchants sent out vessels, but more often the English vessels engaged in other branches of trade.[19] The English, as well as all the other early adventurers in the whale fishery, were dependent on the Biscayans, for they, from long years of training, were skilled in the business. Harpooners, coopers and cutters of fat, the most important officers, were usually all Biscayans.[20] This dependence on foreigners for help was one of the chief causes of the early English failures in the whale fishery.

So consistently unsuccessful were the English whalers that the British Parliament in 1672 deemed it necessary to pass an act to stimulate the industry. All whale products were exempted from import duties for a period of ten years, except when imported through colonies. Colonial imports paid duties of six shillings per ton for oil and fifty shillings per ton for bone, while foreign imports paid £9 and £18 respectively. But in spite of the fact that the foreign whale fishery was successful, the British attempts resulted mainly in failure.[21]

In 1725 the South Sea Company embarked in the whaling business with twelve ships, but met with only indifferent success. The company persevered, however, for eight years, when, in 1732, whaling was abandoned after the loss of large sums of money. Another company, known as the Greenland Company, had been chartered

[18] Scoresby, p. 38.
[19] Scoresby, p. 40.
[20] Scoresby, p. 30.
[21] Scoresby, p. 64.

toward the end of the seventeenth century mainly with a view to carrying on whaling in the Greenland and Davis Straits fields. The company was chartered for fourteen years with a capital of £82,000, but before the expiration of the charter the capital was entirely consumed by the heavy losses.[22] At the same time the Dutch whalers were uniformly successful.

The same year that the South Sea Company abandoned whaling, 1732, Parliament granted an annual bounty of twenty shillings per ton on all British whaling vessels of 200 tons or upward. But only two vessels sent out by private individuals benefited from it. In 1740 the bounty was increased to thirty shillings per ton and officers of fishing vessels were exempted from liability of impressment into the British navy. Again, in 1749, another ten shillings was added to the bounty, making a total of forty shillings per ton annually.[23] The effects of the bounty, with the other inducements, were such that the British whaling industry again assumed a respectable and hopeful appearance, and by 1755 it was fairly well established.[24]

The bounty was continued with some changes until 1798, when it was reduced to twenty shillings per ton, where it remained for many years. After 1785 the number of British ships fitted for whaling voyages rose as high as 250 sail[25] in a single year, and for several years it averaged over 150 ships annually. Thus, by national support, in the form of bounties, the British whale fishery was established on a firm basis, but only after the lapse of almost two centuries of an intermittent, precarious existence.

Among all the nations of Europe the Dutch stood highest as whalers. They were in early days famous

[22] Scoresby, p. 104.
[23] Scoresby, p. 72–73.
[24] Scoresby, p. 75.
[25] Scoresby, p. 119–120.

for their maritime exploits and they were more assiduous in the northern whale fishery than any other nation, pursuing the trade for a long time with great vigor. To them is attributed the improvement of the harpoon, the use of the reel and line and the lance.[26] The Dutch began whaling about 1612, following the English into the Spitzbergen region, and they were consistently more successful than any other nation. It was no uncommon thing, says Scoresby,[27] for them to procure such vast quantities of oil that empty ships were required to take home the superabundance of the product.

During the early years the Dutch whaling industry was a monopoly in the hands of a company similar to the English Russia Company. In 1642 this monopoly was removed, but the fishery continued to flourish with even greater prosperity. Between 1660 and 1670, 400 to 500 Dutch and Hamburg ships visited the coast of Spitzbergen yearly, while the English sometimes did not send a single vessel.[28] But the inevitable consequence of such activity was soon apparent, because of the constant and vigorous pursuit, the whales became scarce, receding first to the open sea and then to the protection of the ice. The fishery was more dangerous, and where success had been so regular as to be regarded as a certainty there were now frequent unsuccessful voyages and losses from encounters with ice. The trade, therefore, began to decline. But the decline of the Spitzbergen fishery resulted in the opening of the Davis Straits fishery, the Dutch, in 1719, being the first to send vessels there.[29]

All through the seventeenth and early eighteenth centuries the Dutch whaling industry was in a prosperous condition, sending out an average of over 150

[26] Ricketson, New Bedford, p. 55.
[27] p. 41–42.
[28] Scoresby, p. 56.
[29] Scoresby, p. 64.

ships annually up to about 1730.[30] After that year the size of the fleet seems to have decreased gradually, for by 1770 only about forty vessels a year were engaged, in whaling from Dutch ports. From 1770 the Dutch fishery began to decline more rapidly, following the general decline of the Dutch commercial eminence. Where the Dutch had held so marked superiority over the English for more than a century and a half, the conditions were now reversed, through the stimulus given to English whaling by the royal bounties. By 1815 the Dutch industry had fallen so low that the government deemed it necessary to give direct money bounties for its encouragement, and provided for the payment of 4,000 florins towards outfitting every whaling vessel. Thus the Dutch fishery passed in reverse order through the same stages as did the English.

The history of the American whale fishery will reveal many conditions analogous to the phases through which the European fisheries passed. Beginning in the same small way of carrying on operations from shore or near the land, whaling in America grew to be a regular deep sea fishery as whales grew scarce. It passed through the same stages of years of fluctuating successes and precarious existence, periods of prosperity and years of support by bounties. Though the American fishery began later, its growth was rather more rapid than the English fishery. By the time that American whaling ventures were entering on their period of greatest prosperity, the English activities were still receiving valuable support from the tonnage bounties paid to whaling ships, and the Dutch strength was nearly expended. History frequently repeated itself in the case of the whale fisheries of different nations, but the conditions under which it existed made the American industry the greatest of all.

[30] Scoresby, table, p. 156.

CHAPTER III.

The Rise of American Whaling from the Settling of Massachusetts to the War of 1812.

By 1620 the English and Dutch Spitzbergen whale fishery had assumed such importance that the methods and advantages of the industry must have been well known to the early New England colonists before they came to America. Thatcher[1] says that the early settlers were at first undecided whether to adopt Cape Cod for their new home or to look for some more attractive site, and that one of the main arguments in favor of the Cape Cod locality was the prospect of profitable fishing it afforded; "for large whales of the best kind for oil and bone came daily alongside and played about the ship. The master and his mate, and *others experienced in fishing, preferred it to the Greenland whale fishery*,[2] and asserted that were they provided with the proper implements £300 or £400 worth of oil might be secured."

That whales were abundant at this time both in deep water and along the coast seems undoubted. According to Starbuck,[3] Captain John Smith, in 1614, found whales so plentiful along the coast that he turned aside from the original object of his voyage to pursue them. And Sabine quotes from the journal of Richard Mather, who came to Massachusetts Bay colony in 1635, where the latter tells of seeing, off the New England coast, "mighty whales spewing up water in the air like the smoke of a chimney . . . of such incredible bigness that I will

[1] Thatcher: History of Plymouth, p. 21.

[2] The italics are mine.

[3] Starbuck: History of American Whale Fishery. Footnote, p. 5.

never wonder that the body of Jonah could be in the belly of a whale."[4]

It is evident from these facts that there was an abundant source of a profitable whale fishery, while Thatcher's statement indicates that among the first colonists there were men, at least well acquainted with, if not actually experienced in, whaling. It is quite generally accepted that along with the idea of religious freedom one of the main purposes in the settlement of Massachusetts was the founding of a fishing colony. The right to fish without restriction of any kind was one of the important provisions of the royal charter. The first emigrants to the Bermudas, about fifty in number, were sent out in 1612. Richard Moore, a ship's carpenter, was the first governor, and the instructions given to him specified various sources of wealth which might be derived from the colony. Among these sources ambergris and whale oil were included as important. The history of American whaling, therefore, may be said to begin almost with the settlement of the New England colonies, though several decades elapsed before it appears to have become a regular or at all important pursuit. It is quite probable, however, that some attempts at whaling were made before the time of any recorded account now available.

Most of the early references to whales and whaling in the Massachusetts colonies, now available, occur in the legislative records. The subject of drift whales appears to have attracted a good deal of attention in both the Plymouth and the Massachusetts Bay colonies, for there are numerous instances of orders relating to their ownership and disposal. Thus, according to Freeman,[5] the town of Eastham, in 1662, voted that a part of every whale cast ashore should be appropriated for the support of the ministry. But almost without exception these early references speak only of drift whales, thus making

[4] Sabine: Fisheries of the American Seas, p. 42.

[5] Freeman: History of Cape Cod, II, p. 362.

it uncertain when the actual pursuit and capture of whales began to be practiced by the inhabitants of Massachusetts.

The first unmistakable indications that whaling had become a regular business in Massachusetts appear in 1688 when Secretary Randolph wrote home to England: "New Plimouth colony have great profit by whale killing. I believe it will be one of our best returns, now beaver and peltry fayle us."[6] The records of the Massachusetts colony for the same year show a memorandum setting forth the principle that "each company's harping iron and lance be distinctly marked on ye heads and socketts with a poblick mark."[7] This principle is essentially the long recognized law of whalemen that "the craft claims the whale." The Plymouth colony records for 1690 show the appointment of "inspectors of whales" as a means of preventing suits by whalers.[8]

In 1688 an inhabitant of Salem, Mass., claiming that he had been engaged in whaling for twenty-two years, petitioned the colonial authorities for a patent for making oil. And four years later a number of Salem whalers complained that whales struck by them and bearing their irons had been taken by Cape Cod whalers.[9] From these facts it appears that whaling had come to be a regular and plainly important business from several towns in the Massachusetts colonies before the end of the seventeenth century.

Whaling was early recognized as a regular pursuit in the Connecticut and the New York colonies. In 1647 the general court at Hartford granted a sort of monopoly of whaling in Connecticut to one Whiting.[10] This is the first record of whaling in that colony, and the

[6] Starbuck, p. 8.
Mass. Col. Mss., Treas., III, p. 80.
[8] Plymouth Col. Records, VI, p. 253.
[9] Starbuck, p. 18.
[10] Quoted by Starbuck, p. 9, from Conn. Col. Record, I, p. 154

venture, if ever tried, probably amounted to little, since there is no further reference to whaling until many years later. It seems probable, however, as Starbuck asserts[11] that the first really organized prosecution of the whale fishery by Americans was made by the settlers at the eastern end of Long Island. Howell[12] states that the town of Southampton, on the southern shore of Long Island, was founded in 1640 as an offshoot from the colony at Lynn, Mass., and that almost from the very first the settlers recognized the possibilities of deriving revenue from the taking of whales. Accordingly, in 1644, the town was divided into four wards of eleven persons each, whose duty it was to attend to all drift whales cast ashore in their ward. Whenever a whale was secured, it was customary to select by lot two persons from each ward to cut it up. Every inhabitant was to share equally in the division, except the cutters, who had a double portion for their labor. This cooperative industry may be regarded as the direct ancestor of the famous system of a "lay" or share of the catch in vogue over a century later.

That the practice of taking only drift whales cast ashore soon gave place to active pursuit of whales and killing from boats is shown by a number of old records. Thus, in 1672, the towns of Easthampton, Southampton and Southwold, at the eastern end of Long Island, in a memorial to the court at Whitehall, N. Y., stated that they had "spent much time and pains . . . in settling the trade of whale fishing in the adjacent seas, having endeavored in it above these twenty years past."[13] According to this statement boat whaling must have commenced as early as 1650. In 1668 several inhabitants of Easthampton formed a company and entered into an agreement "binding certain Indians to go to sea

[11] Starbuck, p. 9.

[12] Howell: History of Southampton, p. 179-180

[13] Starbuck, p. 11.

whaling."[14] The Indians were to be paid three shillings per day, the craft and necessary tackle being furnished by the partners. Howell says that boat whaling soon came to be of so much importance in the community that every able man in the town (Southampton) was obliged to take his turn in watching for whales from some prominent place on the shore, and to give the alarm as soon as one was seen near the coast. It was not unusual for expeditions of several boats each to be fitted out for whaling along the coast, the voyages generally lasting about two weeks. The boats were so small, however, that they never ventured far from land, the men usually camping out on shore during the night. Indians, under the command of one or two white men, were largely employed in these early operations of boat whaling.[15]

The whaling business of Eastern Long Island had become important enough in the last two decades of the seventeenth century to be the cause of more or less conflict with the authorities of the main New York colony. The trouble arose largely from the practice of the whalers in making Boston or some Connecticut port their trading center, instead of taking their oil to New York. As early as 1684 an act was passed laying a duty of 10 per cent on all oil and bone exported from New York ports to any outside ports except directly to England or to the West Indies.[16] But the act accomplished very little in the way of forcing the Long Island whalers to send their products to New York to be exported. These records are chiefly valuable, however, because they furnish about the only suggestion of the early trade movements of whale products.

The only other place to engage in whaling previous to 1700 was Nantucket, or Sherburne as it was called,

[14] Starbuck, p. 12.
[15] Starbuck, p. 10.
[16] Starbuck, p. 15.

until 1795. It is true that as early as 1652 "whale cutters" were appointed at Martha's Vineyard,[17] and that other orders dealing with the ownership and disposal of whales appear occasionally from that time on, but there does not seem to have been any regular business of whaling before the end of the century.

With the Nantucket colony the conditions were quite different. To quote from Macy,[18] the historian of the island, the first whaling expedition in Nantucket "was undertaken by some of the original purchasers of the island; the circumstances of which are handed down by tradition, and are as follows: A whale of the kind called 'scragg' came into the harbor and continued there three days. This excited the curiosity of the people and led them to devise measures to prevent his return out of the harbor. They accordingly invented and caused to be wrought for them a harpoon with which they attacked and killed the whale. This first success encouraged them to undertake whaling as a permanent business, whales being at that time numerous in the vicinity of the shores."

The date of this first venture is not known, but by 1672 the inhabitants of the island regarded whaling as sufficiently important to warrant the making of a proposal to one James Loper to carry on a regular whaling business from that place. As an inducement to carry on whaling in all seasons for two years he was to receive ten acres of land, enough common pasturage for three cows, twenty sheep, one horse, and all the wood and water he needed for his use. At the same time a similar offer was made to a cooper if he would ply his trade in the island. It is said that the latter accepted the proposal while the former did not, hence the benefit to the whale fishery was not marked.[19]

[17] Starbuck, p. 18.

[18] Macy: History of Nantucket, p. 28.

[19] Macy, p. 42.

From that time until 1690 there is a lapse in the history of Nantucket whaling. There is a tradition among the islanders, says Macy,[20] that in 1690 several persons were standing on a hill watching the whalers off shore; one of the islanders, of prophetic soul, pointed to the sea, saying "There is a green pasture, where our children's grand-children will go for bread." However true the tradition, the content of the supposed prophecy was fully realized in later years.

In the same year (1690) the islanders found "that the people of Cape Cod had made greater proficiency in the art of whale catching," and sending thither, they . . . "employed one Ichabod Paddock to remove to the island and instruct them in the best method of killing whales and obtaining the oil."[21] As Starbuck says,[22] "judging from subsequent events he must have proved a good teacher and they most apt pupils."

Thus, before the end of the century in which American colonization began, whaling was established as a regular business, if still on a small scale, in the different Massachusetts colonies, especially from Cape Cod; from the towns at the eastern end of Long Island, and from Nantucket. At all these places the fishery had gone through the same stages of first taking only whales cast ashore, and later developing into a regular practice of boat whaling. True it is that the industry was still very much in its infancy, but it is interesting to note that almost every locality subsequently to become important in its whaling interests had begun the enterprise before 1700. The notable exceptions were New Bedford, Mass., and New London, Conn.

With the opening years of the eighteenth century Nantucket rapidly came to be the foremost whaling port. The very situation and character of the island

[20] Macy, p. 43.
[21] Macy, p. 42.
[22] Starbuck, p. 17.

seemed to favor, even to necessitate, the following of fishing pursuits. The island was comparatively sterile, making it difficult to gain a livelihood from tilling the soil, and being small in area, less than fifty square miles, meant a constant struggle with nature. It was but natural therefore, for a large proportion of the inhabitants to turn to the sea for their living, and whaling was the most attractive and profitable pursuit. Whales were so plentiful about the shores that at first the islanders secured all the oil they desired without venturing out of sight of land.

"The south side of the island," says Macy,[23] "was divided into four equal parts, and each part was assigned to a company of six, which, though thus separated, carried on their business in common. In the middle of this distance (about three and one-half miles to each division) they erected a mast" from which a lookout kept constant watch for whales at sea. As soon as a whale was seen boats were sent out in pursuit, the whale when captured, being towed ashore where the blubber was tried out at the works on the beach. Many Indians were employed in these boat-whaling operations, each crew being composed partly of aborigines. It was not long before the Nantucket people were the most expert whalemen in the country, as a logical outcome of so ardently following this one pursuit.

The year 1712 was epoch making in the history of whaling. In that year a Nantucket whaleman, named Christopher Hussey, while cruising along the coast, was blown out to sea by a strong northerly wind. In the course of his involuntary voyage he came across a number of sperm whales, and killing one, brought it home with him,[24] the first sperm whale known to have been taken by American whalers. As early as 1688, however, a petition had been made to the Governor of New York

[23] Macy, p. 44.
[24] Macy, p. 42.

asking for permission to carry on "a fishing Design about the Bahames Islands and Cap florida, for sperma Coeti whales and Racks."[25] But there is no record to show that the venture was ever carried out.

Hussey's exploit, however, worked a radical change in whaling methods. Up to that time whaling, wherever it was followed in the colonies, had been confined to the taking of drift whales and later the so-called shore or boat whaling, the operations being carried on entirely within sight of land. Now the Nantucket people began immediately to fit vessels, usually sloops, of about thirty tons, to whale out in the "deep" as it was called, to distinguish it from shore whaling. The vessels were fitted for cruises of about six weeks, the blubber of the whales taken being stored in hogsheads and brought back to the try works on shore where the oil was extracted.[26] By 1715 Nantucket had six sloops engaged in this new fishery, and by 1730 there were twenty-five vessels of from thirty to fifty tons employed in deep-sea whaling.

The shore fishery was still carried on even as late as 1760,[27] though Macy seems to imply that it reached its greatest importance about 1726. But the inevitable decrease in the number of whales near land soon became apparent. The change of whaling from a shore to a sea industry had already begun, the fitting of larger and larger vessels and the extension of voyages was only a question of added years. Perhaps of greatest importance, Hussey's adventure introduced sperm oil, which in its superiority over other oils was for many decades to be the most important and most valuable product of the whale fishery, while the pursuit of sperm whales was to be one of the most powerful factors inducing the

[25] Quoted by Starbuck, p. 15, from Mass. Col. Mss., Usurpation, VI, p. 126.

[26] Macy, p. 46.

[27] Macy, p. 44.

development of the business. Whaling was already on the path which a little over a century later was to lead it through many a hard struggle to its world-wide prominence as an American industry.

As the large vessels were added to the fleet, the voyages were increased and new regions were visited. During the first few years of deep-sea whaling it was the general practice for the vessels to go to the "southward," as it was called, where they cruised until July. Then they returned, refitted, and went to the eastward of the Grand Banks to finish the season.[28] Davis Straits were visited by the whalemen as early as 1732,[29] and in 1737 the "Boston News Letter" records the entrances and clearances of several vessels from that locality. According to Macy,[30] the Nantucket whalers extended their cruises as follows: Coast of Guinea, 1763; Western Islands, 1765; coast of Brazil, 1774. Local tradition says that the first Nantucket whaler to "cross the line" arrived home on the day of the Battle of Lexington and Concord.

"Between the years 1770 and 1775," says Macy,[31] in writing of Nantucket whaling, "the whaling business increased to an extent hitherto unparalleled. In 1770 there were a little more than 100 vessels engaged, and in 1775 the number exceeded 150, some of them large brigs." Nantucket at the opening of the Revolution was enjoying the full tide of success in her great whaling industry. The Nantucket whaling interests were by far the most important in the colonies. Nantucket led the way in all things pertaining to whaling, and the whalers from other ports followed its example. The whaling success had turned the sterile island into a flourishing, prosperous community, when the war came and all was

[28] Macy, p. 50.
[29] Starbuck, p. 24, note.
[30] Macy, p. 54.
[31] Macy, p. 233.

changed. But before discussing the effects of the war, it is necessary to consider the condition of some of the other principal ports.

The Long Island fishery, which had been among the most prominent at the close of the seventeenth century, receives but meager mention in the records during the eighteenth century. In the first decade or two there are occasional orders relative to whales and whaling,[32] but little to indicate that the business was growing to much extent. During most of these early years, just as in the century before, whaling was a constant source of conflict between the whalemen and the colonial authorities. Thus in 1711 the latter issued a writ to the sheriffs directing them to seize all whales. In later years, Southampton, Easthampton and the other early whaling towns seem to have been supplanted by the younger port, Sag Harbor,[33] but even as late as 1760 only three sloops were fitted from that port. Nantucket had far outstripped its early rival.

On Cape Cod the fishery was more progressive. The "Boston News Letter,"[34] in 1727, says, "We hear from the towns on the Cape that the whale fishery among them has failed much this winter, as it has for several winters past, but having found out the way of going to sea upon that business, and having had much success in it, they are now fitting out several vessels to sail . . . this spring, more than have ever been sent out from among them." From this item it seems safe to conclude that the people of Cape Cod had followed the example of the Nantucket whalers, and that at least as early as 1726 the original shore whaling had been supplemented by deep-sea whaling.

Ten years later the same authority states[35] that a

[32] Starbuck, p. 26 ff.

[33] Starbuck, p. 43.

[34] Mar. 20, 1727, quoted by Starbuck, p. 31.

[35] "Boston News Letter," Apr. 21, 1737, quoted by Starbuck, note, p. 32.

dozen vessels, some of them of a hundred tons burden, were fitting that spring at Provincetown for the Davis Straits fishery. "So many men are going on these voyages," says the account, "that not more than twelve or fourteen men will be left at home." During the next two or three years the whaling seasons were poor, and many of the people on the Cape were in straitened circumstances.[36] After 1741 the whaling voyages were interfered with by the depredations of French and Spanish privateers, and for some years the voyages to distant grounds seem to have been abandoned, as there were no reports of arrivals from or departures for the Davis Straits fishery.[37]

The fishery seems to have survived in Cape Cod towns, however, and to have been in a fairly prosperous state at the opening of the Revolution, for in 1775 there were thirty-six vessels engaged in whaling from the towns of Wellfleet, Barnstable and Falmouth. The vessels were from 75 to 100 tons burden and were engaged mainly in the northern fishery.

As regards the whaling operations from towns about Boston, the facts are very meager during the years preceding the Revolution. Before the opening of the century the business had been carried on in a small way at Salem. It is probable, therefore, that it was continued at that place and perhaps at other places along the coast. But just where or to what extent it is impossible to tell. Whether Boston was at this time an actual participant in whaling is hard to determine, since it is known that vessels from the whole colony were accustomed to make that place their port of entry and clearance. In 1775 Boston was credited with twenty vessels, and Lynn with two, averaging 100 tons burden, but how many of those registered from Boston were actually Boston vessels no one knows.

[36] Starbuck, p. 33.
[37] Starbuck, p. 38.

The Rhode Island colonists had been carrying on a whale fishery in a small way within the colony, probably as a shore or boat fishery, for a number of years previous to 1731,[38] when the colonial assembly passed an act providing a bounty of five shillings a barrel for oil and a penny a pound for bone.[39] Starbuck, however, states that deep-sea whaling was carried on from Rhode Island ports as early as 1723.[40] To support his statement he quotes the "Boston News Letter" of that year, which records the arrival of a whaling vessel at Newport "with the largest sperm whale ever seen up to that time in that region."

The reports of Rhode Island whaling during later years are as unsatisfactory as the question about when it really began. Occasional records are to be found of the arrivals of whaling vessels,[41] and during some years quite a thriving business seems to have been done. Before the war with England began, Newport, Providence, Warren and Tiverton, together with Swanzey, across the line in Massachusetts, made Narragansett Bay an active whaling locality.

In addition to the places already mentioned, New London, Conn., entered the list toward the middle of the century. At Williamsburg, Virginia, the stimulus of whaling success was felt, and in 1751, a sloop was fitted out for whaling along the southern coast. The venture was successful, but there is no record to show how long the business was followed at that place.[42] At Martha's Vineyard deep-sea whaling appears to have begun about 1738, when a Nantucket whaleman removed there and began the fishery with his sloop. But for some reason the fishery from the Vineyard never thrived

[38] Arnold: "History of Rhode Island," II, p. 110.
[39] Arnold, p. 103.
[40] Starbuck, note, p. 35.
[41] Starbuck, p. 43.
[42] *loc. cit.*

as it did from the sister island of Nantucket, perhaps because the former, being larger and more fertile, did not force the inhabitants to look to the sea for a livelihood. In 1775, when Nantucket had a fleet of 150 vessels, aggregating 15,000 tons, Martha's Vineyard had but twelve vessels with a total burden of 720 tons.[43]

New Bedford (then Dartmouth) was almost the last place to appear as a whaling port before the outbreak of the Revolution. The exact date of its beginning is not known, though it was probably just prior to 1760. In that year, says Starbuck,[44] in the deed of a tract of land located within the present town of Fairhaven there was a clause reading, "always excepting and reserving . . . that part of the same where the Try house and Oyl shed now stands." How old these buildings were is not known. In the history of New Bedford,[45] Joseph Russell, the founder of the town, is also said to have been the pioneer in the whale fishery from that place. "It is well authenticated," says the account, "that Joseph Russell had pursued the business as early as 1755." The town was then known as Dartmouth, and from just what part of it these vessels were fitted is uncertain. In 1755 the land now covered by the city of New Bedford was still forest. Not a single house marked the place where less than a century later was destined to stand the greatest whaling port the world has ever known, the city which, in the full glory of whaling prosperity, would send out more vessels than all other American ports combined.

In 1765 four sloops from New Bedford were engaged in the whale fishery,[46] and ten years later the town of Dartmouth was credited with eighty vessels with a tonnage of 6,500 tons,[47] thus bringing this locality, in the

[43] Starbuck, p. 41.
[44] Starbuck, p. 43.
[45] Ricketson: History of New Bedford, p. 58.
[46] Starbuck, p. 43.
[47] Starbuck, p. 57, note.

space of two decades, into a rank second only to Nantucket.

The actual condition of the whale fishery during these years of growth and expansion cannot be traced with any continuity from year to year, because of the absence of records. It is worth while to note, however, certain influences which were at work, affecting the fishery in general, or in particular localities.

As early as 1741 the participation of England in the war of the Austrian Succession gave France and Spain the long desired opportunity to prey upon English commerce, and the colonial interests came in for their proportion of loss. It was just at this time, too, that the practice of deep-sea whaling was becoming fairly well established. The presence of French and Spanish privateers hovering near the coast, however, hindered the development of this new phase of the industry, especially in the Davis Straits region. As Starbuck says,[48] "the period from 1750 to 1784 was the most eventful era to the whale fishery that it ever passed through. For a large proportion of the time the business was carried on under imminent risk of capture, first by the Spanish and French and after by the English." The Davis Straits fishery was eventually quite abandoned, the vessels frequenting the grounds in the vicinity of the Western Islands were constantly liable to losses from capture, and most of the operations were confined to the Grand Banks, along the Gulf Stream and about the Bahamas.[49]

But in spite of these unfavorable conditions the state of the fishery was such that Hutchison could say of this period,[50] "the increase in the consumption of oil . . . in Europe has been no small encouragement to our whale fishery. The flourishing state of the island of Nantucket

[48] Starbuck, p. 36.

[49] Starbuck, p. 56.

[50] Hutchison: History of Mass., III, p. 400.

must be attributed to it." In addition to the advantage of usually profitable markets, the colonial whalemen could benefit from a royal bounty provided for by an act of Parliament in 1748. The bounty amounted to twenty shillings per ton, but in order to receive it the vessels must be built and fitted in the colonies and must remain in Davis Straits or vicinity from May until August, unless they met with accident or secured a full cargo before that date.[51] It does not appear, however, that the bounty had any marked effect on the colonial industry either in increasing the tonnage employed or in adding to the Davis Straits fleet.

In 1755 the colonial whalemen were greatly restricted by an embargo laid on the "Banks" fishermen, during the preparations for the expedition against Nova Scotia, though, as Starbuck says,[52] "the risk of capture by French drivateers was so great that it of itself must have quite effectively embargoed many of them." The embargo was continued in 1757 in spite of the fact that in the previous year the colonists had been subject to a duty for the support of a frigate to defend the Banks fishery.

This same year, 1757, however, the people of Nantucket were given permission to pursue their whaling voyages, as the result of a petition to the Massachusetts general court. One of the main reasons for granting their request was that "their livelihood entirely depends on the whale fishery."[53]

When the Gulf of St. Lawrence and the Straits of Belle Isle were opened to the colonial fishermen in 1761, the whalemen very quickly took advantage of the opportunity to share in the wealth of that fishery. But their hopes of good profits were not realized, for in the same year Parliament not only levied a duty on imports of whale products from the colonies, but also prohibited

[51] Starbuck, p. 37.
[52] Starbuck, p. 38.
[53] Starbuck, p. 39.

their exportation to any other market. At the same time the residents of Great Britain were benefiting from a bounty in which the colonists were not allowed to share.[54] These measures were evidently a part of England's policy in their rivalry with the Dutch for supremacy in the whale fishery. But their efforts were in vain. The American fishery was destined, in the face of every difficulty, to far outrival either the English or the Dutch interests.

One of the best indications of the state of the colonial whale fishery at that time is found in the statements of a petition to Parliament asking for the abolition of the import duty on whale products from the colonies. It says "in the year 1761 the province of Massachusetts Bay fitted out from Boston and other ports ten vessels of from seventy to ninety tons burden for this purpose. That the success of these was such as to encourage the sending out of fifty vessels in the year 1762 for the same trade. That in the year 1763 more than eighty vessels were employed in the same manner."[55] This reference to the number of vessels employed must refer solely to the towns in the original Massachusetts Bay and Plymouth colony, for in 1762 Nantucket alone had seventy-eight vessels engaged in whaling.[56]

The colonial whalers who tried to take advantage of the newly opened St. Lawrence and Belle Isle fisheries, were subject to many irksome restrictions, such as to remove all waste at least three leagues from shore, not to winter on the coast and not to have any intercourse with the French. A few whalemen visited these grounds in spite of the restrictions, but even though they offered convenient and profitable fisheries, the majority of the fleet cruised along the gulf stream and other regions farther south.

[54] Starbuck, p. 39.
[55] Quoted by Starbuck, p. 40.
[56] Macy, p. 58.

In 1767 the report was circulated in the colonies that the irksome restrictions on whaling were to be removed entirely. Early in the spring of 1768, therefore, there was increased activity in the whaling fleet, and vessels again visited Davis Straits. During the year Nantucket sent out eighty vessels averaging seventy-five tons burden and "probably as many more from Cape Cod, Dartmouth, Boston, Providence, Newport, Warren, etc., most of them to the northern fishery."[57] This year marked the beginning of the unprecedented prosperity that whaling interests enjoyed during the years immediately previous to the Revolution.

Macy, in writing of this period in Nantucket, says:[58] "The employment of so great and such an increasing capital may lead our readers to suppose that a corresponding profit was realized, but a careful examination of the circumstances under which the business was carried on will show the fallacy of such a conclusion. Many branches of labor were conducted by those who were immediately interested in the voyages. The young men, with few exceptions, were brought up to some trade necessary to the business. The ropemaker, the cooper, the blacksmith, the carpenter, in fine, the workmen were either the shipowners or their households; so were often the officers and men who navigated the vessels and killed the whales. While a ship was at sea, the owners at home were busily employed in the manufacture of casks, iron work, cordage, blocks and other articles for the succeeding voyage. Thus the profits of the labor were enjoyed by those interested in the fishery, and voyages were rendered advantageous, even when the oil obtained was barely sufficient to pay for the outfits, estimating the labor as part thereof. This mode of conducting the business was universal . . "

[57] Starbuck, p. 50.

[58] Macy, p. 233.

The colonial whale fishery in 1774, says Starbuck,[59] "must have been in the full tide of success. There were probably fitted out annually at this time no less than 360 vessels of various kinds, with an aggregate burden of 33,000 tons." Of these at least 300 sail belonged to Massachusetts ports, according to the figures given in Jefferson's report.[60] The rest were distributed among the different ports in Rhode Island, Connecticut and New York. The great superiority of Massachusetts towns in owning five-sixths of the total fleet is an interesting parallel to similar conditions three-quarters of a century later.

Before the war there was thrift and happiness everywhere in the American whaling world, but the approaching hostilities very early cast a shadow over the prosperity of the fisheries in general. They were the first industry to feel the effects of the imminent war, for one of the first steps taken by England to repress the colonies was directed against the fishing interests of New England. Massachusetts was regarded as the hotbed of the revolutionary spirit, and that colony was also the center of the fishing industries. Hence, in 1775, "to starve New England," Parliament passed the famous act restricting colonial trade to British ports, and placing an embargo on fishing on the Banks of Newfoundland or on any other part of the North American coast.

Macy, quoting from a protest to Parliament against the passage of this bill, gives an excellent picture of the conditions in Nantucket at that time:[61]

"The case of the inhabitants of Nantucket was particularly hard. This extraordinary people, amounting to between 5,000 and 6,000 in number, nine-tenths of whom are Quakers, inhabit a barren island fifteen miles long by three broad, the products of which were scarcely capable

[59] Starbuck, p. 57.

[60] See Table IX, in Appendix I.

[61] Macy, p. 82.

of maintaining twenty families. From the only harbor which this sterile island contains, without natural products of any sort, the inhabitants, by an astonishing industry, keep an 140 vessels in constant employment. Of these, eight were employed in the importation of provisions for the island and the rest in the whale fishery." It was this same measure which inspired Burke to his famous speech on "Conciliation," and one of his most eloquent passages is where he refers to the daring exploits of the American whalemen.

The beginning of actual hostilities effectually put a stop to the whale fishery, except from Nantucket. Early in the war a few vessels were sent out from other ports, but the risks were so great that the business was quickly abandoned. With Nantucket, however, it was a case of necessity to keep up their whaling operations. The whale fishery was practically the only business available for them, for their constant following of this single pursuit had kept them comparatively ignorant of any other way of gaining a living.[62] There were no other resources; the business had to be carried on or the island be depopulated; "starvation or removal were the only alternatives of inaction." Some of the people did remove to New York, eventually establishing the whale fishery there, but most of them preferred to remain even in the face of great hardships.

The history of whaling during the Revolution is merely a chronicle of a constant struggle against adverse conditions by the Nantucket islanders. Early in the war British ships made several forays along the New England coast, capturing and burning vessels and cargoes, and destroying other property at Nantucket, Martha's Vineyard, and Dartmouth. The question at Nantucket was not so much to make whaling profitable as it was to carry on the business at all in the limited way to which

[62] Starbuck, p. 72.

they were restricted by the loss of their vessels. The story of Nantucket during the Revolution, as told by Macy, carries a powerful moral in the almost complete and helpless stagnation in a place where prosperity depended entirely on the success of a single industry.

So great were the hardships, and so pressing was the need for whaling, as the only practicable means of gaining a livelihood, that in 1781 the British admiral at New York humanely granted the islanders permission to employ twenty-four vessels unmolested by the English cruisers. Says Macy, "This privilege seemed to give new life to the people. It produced a considerable movement in business, but the resources of the island had been so diminished, that but a small number of vessels could take the benefit of these permits. Those who had vessels and were possessed of the means, fitted them out on short voyages, and had there been no hindrance it is probable that they would have done well; for the whales, having been unmolested for several years, had become numerous and were pretty easily caught."[63] But the vessels were interfered with by American privateers and several of them were taken and carried to port. In every case, however, they were quickly liberated when it was found that they had not been engaged in illicit trade. Again, in 1783, the Continental Congress granted permits for thirty-five vessels to engage in whaling,[64] but there was hardly time to take advantage of the opportunity before the treaty was signed and the news of peace arrived in this country.

Just as the fisheries had been an important issue in the days before hostilities began, so in the making of peace the settlement of the fisheries question was one of the main causes of contention. The Americans demanded the same freedom in fishing rights as had been enjoyed

[63] Macy, p. 120.

[64] Starbuck, p. 76.

before the war. Great Britain vainly tried to evade this provision of the treaty, but was finally obliged to yield.

The end of the war found the whaling business in a nearly hopeless condition. Except for such of the interest as had been kept up at Nantucket, the business was almost totally ruined and had to be built up anew. And at Nantucket not much had been saved. When the war began, the island had a little over 150 vessels. In 1784 only two or three old hulks remained.[65] Of the rest 134 had been captured or destroyed by the English and fifteen more had been lost by shipwreck. As it was at Nantucket, so it was in a way with all the whaling ports. The industry which eight years before had been enjoying the highest tide of its prosperity was now so completely destroyed that hardly a vestige remained. At the same time an almost total suspension of imports of whaling products had led to the widespread use of substitutes—one of the hardest factors with which the revived industry would have to contend in re-establishing the former demand and general consumption.

But whaling was destined to rise again, though its existence for over two decades was to be a precarious one, filled with the ups and downs of unsettled conditions. The several years of almost complete immunity from capture had resulted in a repopulation of the whaling grounds.

The whales themselves were less shy and hence more readily killed. With characteristic American energy the whalemen set to work to make up for their losses during the war; for the news of peace had hardly arrived before vessels were being fitted anew for whaling voyages. Nantucket was among the first to resume whaling, the people who had any capital left resuming the business with as many vessels as they could secure. New London Sag Harbor, Hudson, N. Y., Boston, Hingham, Welfleet,

[65] Macy, p. 124.

Braintree, Plymouth and Bristol were soon added to the list of whaling ports sending out one or more vessels.[66]

The whale products commanded good prices during the early years after the war, and for a time the business gave promise of good profits. But the boom was short lived. For many years sperm oil had been the most valuable product of the fishery. The chief market for sperm oil, however—the British market—had been practically closed to American shipments by an alien duty of £18 per ton. Oil which was easily worth £30 before the war now brought scarcely £17, while to give a reasonable profit, over expenses, £25 was necessary.[67] The excessive prices on oil and bone fell rapidly. A number of the ports which had entered the field so promptly withdrew their vessels. Thus Hingham, Newburyport, Braintree, Plymouth, Wellfleet, Mass., and Providence, and Bristol, R. I., all sent out one or more vessels in 1784–1785, but none of them (except Wellfleet in 1786) sent any more until several years later.[68]

The condition of the industry again looked hopeless. The neutralization of Nantucket was suggested as a possible remedy for the unfortunate state of affairs, but the suggestion met with no favor.[69] Finally, in 1785, the Massachusetts legislature came to the rescue with an act establishing a bounty on whale products. For every ton of oil imported into the commonwealth, the whalemen were to receive a bounty of £5 on white spermaceti oil; sixty shillings on brown or yellow sperm oil; and forty shillings on whale oil.[70] The only conditions were that the vessel be owned and manned wholly by inhabitants of that state, and that the oil be landed in some Massachusetts port. Inspectors were appointed by

[66] Starbuck, p. 78.
[67] *loc. cit.*
[68] See Table II in Appendix I.
[69] Macy, p. 129.
[70] Starbuck, p. 79.

the towns, and certificates from the selectmen stating kind and quantity of oil, and place where landed, were required in order to secure the bounty.

The bounty was passed mainly to help the inhabitants of Nantucket in firmly re-establishing their one valuable industry. But in reality the working of the bounty was far less desirable than it had appeared. As a result of several years of doing without oil the use of tallow candles had become quite general among the people. There was also little demand for oil for lighting streets in towns or for lighthouses.[71] In short the demand for whale products was greatly limited, while at the same time the bounty gave an unnatural stimulation to the industry. Over-production was the result, and the hopes of advanced profits were only slightly realized. Scammon states that by 1787–1789 there were only 122 vessels engaged in whaling from Massachusetts ports.[72] Dartmouth and New Bedford had fifty, Nantucket thirty-six and various Cape Cod towns, but mainly Wellfleet, had sixteen. In 1775 these same three important towns had had fleets of 80, 150 and 30 sails respectively. Starbuck, however, gives no record of vessels sailing from any Cape Cod town from 1786 until 1794. Hence it seems likely that Scammon has included many small craft not engaged in making regular voyages. If so, the contrast with pre-Revolutionary conditions is still more marked.

The conditions of limited market and low prices were so unfavorable that some of the Nantucket whalemen went to Nova Scotia, settling the whaling town of Dartmouth, opposite Halifax, under inducements from the English. Some accepted an offer of the French king to carry on a whaling business from Dunkirk. And still others, selling their vessels, abandoned a business in which they could see no hope of betterment.[73]

[71] Starbuck, p. 87.

[72] Scammon, p. 209.

[73] Starbuck, pp. 88–90.

The opening of the French market to American whale products in 1789 temporarily brightened the prospects for the whalemen. The business was somewhat stimulated, and as whales were becoming scarce on the old grounds, larger vessels were added to the fleet. Ships and brigs were introduced and the voyages which had reached the South Atlantic before the Revolution were now extended until the Pacific Ocean was reached. Six ships sailed for the Pacific from Nantucket and New Bedford in 1791. They were not, however, the first whalers in the Pacific, since English fitted vessels had preceded them by at least four years.[74]

The prosperity which was expected from the opening of the French market resulted in increased activity and competition. The outbreak of the French Revolution, however, put an end to all these favorable prospects, and shipments sent there after 1792 did not pay costs.[75] The markets were glutted, the price of bone was reduced to ten cents per pound, instead of bringing one dollar per pound as it had before the war, and oil was sold for less than the cost of production.[76] And again there was a temporary period of hauling up or selling vessels rather than engage in the business at the risk of still further losses. Soon after (1798) the prospects of trouble between France and the United States added another load to the difficulties of the whaling interests. The depredations of the French privateers on American commerce were felt heavily in the whaling fleet. Several vessels were captured, four from Nantucket; others were sold because their owners would not send them out at the risk of capture. This risk was so great, says Macy,[77] that "the rates of insurance increased so that shipowners must have been subject to a loss, according to prevail-

[74] Starbuck, p. 90.
[75] Macy, p. 141.
[76] Starbuck, p. 91.
[77] Macy, p. 150.

ing prices of oil, even if ships had arrived with full cargoes."

From this time until the outbreak of the War of 1812 the whale fishery was carried on under uncertain and oftentimes adverse conditions. For a time—i. e., until about 1806 or 1807—the fleet was gradually increasing in size from year to year,[78] as will appear from the figures giving the tonnage of the fleet in Table I of Appendix I. But after that year the tonnage appears to have declined steadily. The Embargo of 1807 was the worst in its effects on the whale fishery. The act did not directly include whaling vessels in the prohibited list, but by stopping the exportation of whale products the prices were kept low. At first, also, the dangers of capture by English privateers were so great that no insurance could be secured, and, unwilling to bear the entire risk, many of the owners withdrew their vessels.[79] For a short time in 1809 and 1810 there were many prospects of peace, and by the end of the latter year almost the whole fleet was again in commission. Thus when the war did break out in 1812 a large proportion of the whaling fleet was at sea—many of the vessels having sailed for the Pacific on voyages varying from two to two and a half years.[80] Some of the vessels returned as soon as they learned of the war, to lie idle in fortified ports until the coming of peace again. Others were captured. Nantucket and New Bedford, the chief whaling ports, suffering most heavily.

In the two years just preceding the war the towns sending out whaling vessels were, besides Nantucket and New Bedford: Sag Harbor, N. Y., Greenwich, R. I., and Westport, Mass., according to Starbuck's record of vessels sailing.[81] In addition to the ports already men-

[78] Starbuck, p. 91.
[79] Macy, p. 159.
[80] Starbuck, p. 93.
[81] Starbuck, p. 180ff.

tioned the following places had sent out whaling vessels between 1785 and 1812: In Massachusetts, Gloucester and Wareham; in Rhode Island, Providence and Bristol; in Connecticut, New London, Norwich and East Haddam; in New York, Hudson and New York, none of which, however, sent more than five vessels in a single year. The relative importance of the different ports, the small scale on which the fishery was conducted and the fluctuations from year to year may be seen reflected in the records of clearances from these ports during the unsettled period, as given in Table II of Appendix I.

For a second time whaling, except from Nantucket, was stopped by war. There the people from force of necessity were obliged to keep the interests alive, both by whaling from sloops in neighboring waters and by sending out an occasional vessel on a longer voyage. Again, however, the islanders, knowing only the one pursuit, through their shipping, found themselves facing the hardships of actual want when this shipping was interfered with. Of the forty-six whaling vessels belonging to the island when the war began, only twenty-three remained when peace was declared.[82]

Through four decades the American whale fishery had lived a precarious existence of constant ups and downs. Foreign wars, unsettled conditions at home, restricted markets and unnatural stimulation had kept the business in a continual state of uncertainty. Immediately before the outbreak of the Revolution the whale fishery, after several years of unbroken success, had reached the highest point in size and prosperity in its whole history. But at no time in the thirty years from 1785 to 1815 were the conditions stable long enough for the fishery to resume its former importance. Starbuck regarded 360 sail as a conservative estimate of the size of the fleet in 1775. Though exact figures are lacking

[82] Macy, p. 205.

for most of the period from 1785–1815, it seems doubtful if the whaling fleet ever reached a total of 200 vessels. The size of the vessels had increased and the length of the voyages had been extended until whaling in the Pacific was well established. But at best the towns participating were few and the number of vessels was small. It was truly a critical period in the history of the whale fishery. In 1815, for the second time in a half century, the declaration of peace found the whaling industry in a practically ruined condition, to be rebuilt almost anew. But from the ruins a whale fishery was to grow up, slowly and steadily, during the next three decades, of such importance and prosperity as no other time or country has ever seen.

CHAPTER IV.

The Golden Era of Whaling. 1815–1860.

The War of 1812 quite effectually put a stop to extensive whaling operations. In 1813, 1814 and 1815 the imports of whale products fell to a small fraction of what they had been even in the unsettled times of a few years before, and the exports ceased almost entirely under the operation of the embargoes. A comparison of the amounts of imports for two representative years will show the extent of the war's influence.

Imports of Whale Products.

	Gallons Sperm Oil.	Gallons Whale Oil.	Pounds Bone.
1811.....	844,200	304,825	43,200
1815.....	48,510	4,347	....

From 1810 to 1815 Nantucket and New Bedford were the only ports sending out more than a single vessel and in 1812, 1813 and 1814, Nantucket alone kept any of its whaling fleet employed.[1]

The news of the peace came early in the year 1815 and brought almost immediate activity to the whale fishery.[2] Ships were soon fitted and sent to sea both by the old firms and by new adventurers who added to the fleet. The belief that the first cargoes of oil would bring high prices as they had at the close of the Revolution acted as a powerful stimulus to the industry and led many to venture beyond the extent of their funds. The result of this condition at Nantucket, says Macy,[3] was the intro-

[1] Starbuck's records of sailing, p. 18off.

[2] Macy, p. 205.

[3] Macy, p. 207.

duction of "A system of doing business on long credits." The fishery was benefited in a way, since more ships and more men were thereby employed, but general business interests suffered. Merchants were hampered by being obliged to wait for bills to be paid and by having to borrow money to purchase their own stocks of goods. Owners of vessels who were not favored with successful voyages were soon financially embarrassed, and a general depression prevailed at Nantucket.

At other ports the industry was not resumed on such an extensive scale as at Nantucket, and hence there were not the same financial difficulties. By the end of the year 1815 only five other ports besides Nantucket had sent out whaling vessels: New Bedford, Fairhaven, Sag Harbor, Hudson, and Westport—sending a total of eighteen sail, a little over a third the number sent from Nantucket.

In the following year, 1816, six more towns were added to the list of whaling ports—Boston, Edgartown, Newport, Wareham, Rochester and Holmes Hole. But only the first three mentioned continued the business in the years immediately following. It was not until about two years afterward that whaling was once more on a firm basis, with prosperity again promising to smile on the industry. In 1818 the vessels began to return with good cargoes from profitable voyages. In the same year the "offshore fishing grounds" in the Pacific were first visited, and the plentiful supply of whales was reported. The prices of oil still remained relatively high, and though bone was not yet an important product, its price was higher than it had been before the war. The British northern whale fishery had failed during two successive years,[1] and in addition to the other European markets, there was a large demand for oil from the English markets. These conditions seemed to give whaling the

[1] Macy, p. 209.

impetus which it had needed. New life was given to the business and the ascendency of whaling prosperity was fairly begun.

The Nantucket fleet had numbered only twenty-three sail at the close of the war in 1815.[5] By 1819, however, there were sixty-one ships and brigs employed,[6] and by 1821 the fleet had increased to eighty-four.[7] The success of the fishery from Nantucket was an important factor in stimulating the industry at other ports. For over a century Nantucket had been the leader in the realm of whaling ventures. When the Nantucket fishermen made profitable voyages, merchants from other ports were quick to follow their example. In fact the whale fishery, perhaps more than any other industry, was at all times easily stimulated and easily depressed. This period was no exception to the rule. For two or three years about 1820 there were over a score of ports sending out whale ships more or less regularly, mainly from Southern New England and New York points. Other places entered the field during the years following, though from many of them the fishery was carried on intermittently for some time. Nantucket and New Bedford far outranked all other places in the magnitude of their whaling interests. While Fairhaven, New London, Sag Harbor and Westport were employing gradually increasing fleets each year.

Between 1820 and 1835 was an uneventful period in the whaling business, marked mainly by stable conditions and by steady but gradual growth. In 1820 the Pacific whaling was extended to the coast of Japan, and within the next few years the whalers were going to all parts of the South Pacific and Indian Oceans. There were hardly a half dozen ports from which whaling was regularly pursued in 1820. During the early twenties the number of important whaling ports was not greatly increased.

[5] Macy, p. 205.
[6] Macy, p. 209.
[7] Macy, p. 225.

Toward 1830, however, the generally prosperous conditions of the whaling interests began to be reflected in the larger number of ports from which vessels were regularly sent on whaling voyages year after year. Thus from 1830 on, regular fleets were employed from Falmouth, Fall River, Lynn, Plymouth, and Salem, in Massachusetts; from Bristol and Warren, in Rhode Island; from Hudson, Greenport and Poughkeepsie, in New York; from Portsmouth, New Hampshire; and from Stonington, Connecticut. From several of these ports the fishery had been carried on intermittently at different times for many years previous to 1830. By 1835 the number of ports had increased to nearly thirty, with fleets varying from two or three sail to nearly two hundred. In 1835, for example, the fleet from New Bedford and Fairhaven numbered 178 vessels and in 1836 it was 208.[8] In 1829 the combined total fleet was 203 sail, including ships, brigs and schooners. During the next five years the number more than doubled, there being 421 sail in the whaling fleet of 1834.[9]

The year 1835 marks the beginning of a period of almost phenomenal growth and prosperity in the whale fishery, the effects of which lasted for two decades—the culmination of the Golden Age of whaling. For a number of years previous to 1835 whaling had met with fairly uniform success. New grounds where whales were very abundant had been successively opened. The industry had enjoyed settled and generally favorable conditions both at home and in foreign markets. Whalebone had come to have an increasingly large use in various industries and from being regarded as waste it was beginning to rank as an important product. The markets for oil were good, and in the years just previous to 1835 the prices had shown an upward tendency. Sperm oil was

[8] Starbuck, p. 702.

[9] Hunt's Magazine, XVI, p. 99.

noticeably higher, and bone was bringing twice as much as it had in 1820. At the same time the quantities of whale products imported was increasing rapidly, though not constantly, from year to year. In 1835, also, a Nantucket whaler captured the first right whale on the northwest coast of America, thereby opening one of the most important grounds ever visited by the whaling fleet. Under these favorable conditions the rapid growth of the next few years was almost inevitable.

From 1835 to 1860 the whaling fleet averaged about 620 vessels annually with a tonnage aggregating 190,500 tons. The annual imports averaged 117,950 barrels of sperm oil, 215,913 barrels of whale oil and 2,323,512 pounds of bone—with a total average value of over $8,000,000 a year.[10]

The six years from 1834 to 1840 witnessed an increase of the fleet from 421 to 552 vessels. In the latter year there were thirty-eight different ports regularly engaged in whaling, though about two-thirds of the total fleet were owned at New Bedford and Fairhaven, Nantucket, New London and Sag Harbor.[11] Another six years and the whaling fleet had assumed the greatest proportions it was ever to know. In 1846 the fleet numbered 680 ships and barks, 34 brigs and 22 schooners, with a total tonnage of 233,262 tons.[12] The value of the fleet alone at this time exceeded $21,000,000,[13] while all the investments connected with the business were estimated to have a value of at least $70,000,000, furnishing the chief support for 70,000 persons. But as was characteristic of the whale fishery, in spite of the greater number of vessels employed and the larger amount of capital invested, the importations in 1846 were less than for the years just previous; and less than the quantities imported in some of the suc-

[10] Compiled from Scammon's figures, p. 243.

[11] Goode, p. 171.

[12] "Whalemen's Shipping List."

[13] Scammon, p. 213.

ceeding years when the size of the fleet was distinctly smaller.

Though 1846 or 1847 is generally regarded as marking the year when the whale fishery reached its greatest prosperity, the conclusion is a mistaken one. The year 1846 marks only the year when the largest fleet was employed and the amount of invested capital was therefore greatest. The real value of the fishery as a commercial enterprise continued to remain high for a number of years afterward. Prices of oil and bone continued to rise quite steadily year after year during the next decade. Between 1846 and 1856 sperm oil rose from 88 cents to $1.62 per gallon; whale oil rose from 34 cents to 79 cents and bone rose from 34 cents to 58 cents a pound. In the latter year, despite the smaller importations than for some of the previous years, the actual value of the products was greater. These highly prosperous conditions were the direct result of the ready markets and increased consumption of whale products throughout the country. In 1857, however, the financial depression brought a sudden slump in prices of oil, and sounded the doom of whaling interests.

The whaling boom in 1846 and 1847 was the outcome partly of the previous years of success and prosperity, encouraging new ventures, and partly of the opening of the new grounds for bowhead whales in the Okhotsk and Kamtchatka Seas. The opening of the Arctic fishery two years later gave another impetus to the industry. The importance of the Pacific grounds at this time may be seen from the number of vessels cruising in the different regions in the year 1847. About sixty small barks, brigs and schooners were cruising in the Atlantic for sperm whales, and one ship was engaged in the Davis Straits fishery. Some thirty-two barks were in the Indian Ocean after sperm whales, while a single schooner was sperm whaling in the Pacific and a dozen other whalers were temporarily engaged in the merchant ser-

vice or acting as tenders to the whaling fleet. Practically all of the remaining 600 vessels were cruising on the different grounds in the North and South Pacific. About a fifth of these were sperm whaling only, and the rest were fitted for both sperm and right whaling. The first whaling vessels had entered the Pacific in 1791 and now, a little over half a century later, more than six-sevenths of the fleet were frequenting those grounds.

The Golden Age of whaling was marked by numerous small experiments in the fishery from a large number of ports. Maine, a great fishing state in other branches of the fisheries, was never prominent in whaling. According to some accounts whaling was carried on for many years after 1810 from Prospect Harbor, while shore whaling in the vicinity of Tremont was begun about 1840 and continued for nearly twenty years.[14] Between 1835 and 1845 Bath, Bucksport, Portland and Wiscasset had vessels engaged in whaling, but none of them had more than a single vessel in any one year. Whaling was soon abandoned from all Maine ports.

The only other whaling port north of the Massachusetts coast was Portsmouth, N. H. The fishery from there was begun in 1832, and, with the exception of one year, one or two vessels were fitted for whaling annually until 1848.

Newark, N. J., and Wilmington, Del., were also added to the list during this time, Wilmington having five vessels in its fleet from 1840 to 1842. But for the most part the minor ports were in Southern New England and New York where the influence of the greater successes was more strongly felt.

A glance at the figures showing the fleet for each year at the different whaling ports (Table II in Appendix I) shows a number of cases where whaling became a regular industry between 1830 and 1840; the fleet reached its

[14] Goode, pp. 40–41.

greatest size in 1845 to 1848 and the industry was finally abandoned in the next ten or fifteen years. Fall River, Lynn, Holmes Hole; Mystic and Stonington, Conn., and Greenport, New York, all furnish typical examples of the stimulation of whaling enterprises from 1835 onward. At several of these places the whole history of whaling operations falls within the limits of the Golden Age. They were enterprises which came into existence on the full tide of prosperity reflected from other ports. They disappeared as quickly as they came when that prosperity began to totter.

The whaling industry from practically all of the smaller ports began to fall off after 1847 or 1848, while in a few places there had been a decline for some years previous. But not so with New Bedford. As far back as 1820 the New Bedford interests had become a close rival of Nantucket; by 1830 New Bedford was supreme in importance in the whale fishery, and by 1840 the New Bedford fleet was more than twice as large as the Nantucket fleet, its nearest rival. When the business began to fall off at other places, it kept on increasing in the New Bedford district. After 1847 Nantucket, New London, and Sag Harbor, following the great majority, were yearly decreasing their whaling fleets. But the highest point of whaling prosperity, in the size of the fleet, amount of capital invested, and value of imports, was not reached at New Bedford until 1857. In that year the fleet numbered 329 sail, valued at over $12,000,000, and employing some 10,000 seamen alone.[15] Whaling with its associated industries was the main commercial and industrial interest of the city, and thousands of busy workers had been employed during the preceding century in trades and professions closely related to the whaling industry.

During the Golden Age the New Bedford district was the center of the greatest whaling operations ever carried

[15] Pease, p. 30.

on from any region in the world. Just previous to the Revolution Nantucket had stood forth resplendent in the prosperity of her daring whalemen. But in all her glory Nantucket had not risen even to a semblance of the industry as prosecuted from the New Bedford district.

Within a radius of ten miles of New Bedford were Fairhaven, Dartmouth, Westport, Mattapoisett and Seppican, making up a whaling fleet from Buzzard's Bay that totaled 426 sail in 1857, ten years after the fleets of other ports had begun to decrease. Rochester in the same circle had been a flourishing whaling town—in fact there was hardly a town in this area which had not taken an active part in whaling enterprises.

It seems safe to assert that no other industry so wide spread in its operation has been so closely restricted in the places from which it was carried on. Even in its greatest development the charmed circle of important whaling ports was not widely extended. Outside of the ports along the southern New England coast from Cape Cod to New York, and on the islands to the south, there was hardly a single important port, until the rise of San Francisco, after 1880. And the center of all from 1820 onward was at New Bedford.

The continued growth of the New Bedford interests, after the other fleets had begun to decrease, kept up the industry to a high rank of commercial importance, and through a whole decade had warded off the rapidly approaching decline. But on all sides whaling vessels were being sold or withdrawn. Partners were dropping out of the whaling companies. Old companies ceased to exist at ports where they had conducted the business for years. And finally, at port after port, the industry was entirely abandoned. The changed economic conditions were steadily and surely undermining whaling prosperity. New Bedford, the queen of whaling ports, could no longer turn the tide.

It is not at all easy to explain why the New Bedford

region so far outranked all others in the magnitude of her whaling interests. The great prosperity of the Golden Age had grown out of stable economic conditions in a time of no important wars either at home or abroad. Industrial prosperity had been general. The demands for, and consumption of, oils and bone had increased on all sides. The European markets were quite largely dependent on the American supply. Prices were good, and the opening of successive whaling regions made successful and profitable voyages the rule. All the ports alike carried on their operations under these same favorable conditions. But New Bedford rapidly outstripped them all.

The New Bedford supremacy could not be due to closer proximity to the whaling grounds, for nearly all the important grounds were in the Pacific. Nor could it be due to priority in the fishery, for Nantucket was sending out half a hundred vessels yearly before the first house was built in New Bedford. In Nantucket necessity had been the mother of the fisheries, for no other means of a livelihood was offered. But at New Bedford the necessity was no greater than at a hundred other New England ports. The harbor was no better than many others along the coast. Boston and New York had harbors far superior to New Bedford, yet neither was ever a great whaling port. The facilities for refining, for manufacture or for communication were no better than at other places. No regular maritime commerce was established until the trade in whale products developed it, and the railroad was not built until nearly 1850. In fact there does not seem to be any good reason why New Bedford should have been the greatest whaling center any more than Boston, or Provincetown, or New London. About the only plausible explanation seems to be that it was largely due to the proximity to Nantucket. At Nantucket whaling had sprung up from a natural stimulus and met with success. It was quite logical therefore for

the New Bedford harbor to be used as a whaling port. As the industry flourished, its promoters and followers did not have to contend with the same unfavorable natural conditions as those which had to be met on barren Nantucket. Success created new capital and attracted still more for investment in whaling ventures. The New Bedford whalemen soon became well known for their skill and success. Because there were important interests at New Bedford others were attracted. Hence the fact that the Golden Age of whaling was very largely the prosperity of the New Bedford fishery.

CHAPTER V.

The Rise of Pacific Whaling.

Deep-sea whaling had been carried on in the Atlantic for nearly three-quarters of a century, before the whalers, led by their desire for more rapid returns and greater profits, rounded Cape Horn into the Pacific Ocean. In 1791 six ships from Nantucket and one from New Bedford sailed for the Pacific on sperm whaling voyages. It was an epoch-making step in the history of whaling, since out of the abundance of these distant grounds was to grow a fishery of far-reaching commercial importance.

These first Pacific whalers found plenty of sperm whales along the coast of Chili and returned home with full cargoes after successful voyages. The news soon spread through the fleet, and each year saw an increasing number of vessels clearing for the Pacific grounds. Later voyages were extended farther and farther north along the coast until the equator was reached. The cruising grounds at first were confined mainly to the waters up to a distance of 100 leagues from land,[1] and in this region whaling continued until the fishery was temporarily stopped during the war of 1812.

Whaling was resumed again in 1815 and the years following, and the fleet resorted to the old Pacific grounds. But with the increasing activity of the whalemen, whales began to be scarce, and the voyages were extended in the search for new grounds. In 1818 the so-called "offshore grounds" were discovered with sperm whales in large numbers, and by 1820 upwards of fifty ships were cruising in that region. But in a short time those grounds

[1] Macy, p. 217.

were also practically exhausted, and the pursuit of whales led the adventurous whalemen farther and farther into the Pacific. Between 1820 and 1821 the first vessels went to the Japanese coast and in the following year more than thirty vessels cruised there.[2] From that time on the voyages were extended rapidly to other parts of the North and South Pacific, while some vessels, going out by way of the eastern route, cruised for a time in the Indian Ocean, mainly about Madagascar and the mouth of the Red Sea.

The steadily increasing prosperity of whaling after the war was reflected in the growth of the Pacific fishery. About 1830 to 1835 the Nantucket fleet went mainly to the Pacific, and after 1840 they went there almost exclusively. The Nantucket fleet was also soon followed by the majority of the New Bedford fleet, and a large part of the New London and the Sag Harbor vessels. In fact it was largely due to the vessels from these latter ports that the Pacific fishery was so rapidly and successfully extended. The Nantucket whalemen, on the other hand, persisted in resorting to the older grounds often for many years after new grounds were proving more profitable to the vessels from other ports. This fact alone was an important factor in bringing about the early reverses in whaling enterprises from Nantucket.

About 1838 the great northwest coast whaling grounds were discovered. Five years later whales were first taken along the coast of Kamtchatka and in the Okhotsk Sea, and ten years later, 1848, a Sag Harbor vessel made a very successful voyage in the Arctic Ocean north of Bering Strait. For several years previous to that date the chief cruising grounds in the North Pacific had been along the northwest coast and south of Bering Strait.[3] Thus it had taken only a little over half a century from the time the first whalers entered the Pacific until they

[2] Macy, p. 218.

[3] Goode, note, p. 85.

had penetrated as far as the Arctic. From the very first the value of the Arctic fishery was apparent, and the fleet frequenting the Arctic grounds increased rapidly in numbers. In the last few decades it has been the most important of all whaling regions, almost all the Pacific fleet cruising in Arctic waters.

Up to the time that whaling was begun in the Arctic, the whole Pacific fishery had been carried on from the whaling ports on the Atlantic. Though the whalers often put into Pacific ports, or wintered along the coast, it was from the New England ports that the vessels sailed and to them that they returned with their cargoes of oil and bone. Many months of valuable time were thus consumed in the long voyages out and in around Cape Horn.

Two years after the first whaler entered the Arctic region whaling was begun as a Pacific coast industry. Late in 1850 an old whaling vessel, the Popmunnett, was fitted and sent out from San Francisco on a sperm whaling voyage to the Gallipagos Islands, and the coasts of Chili and Peru.[4] A bark soon followed, but what success these voyages met is not recorded. And it was not until fifteen years later that San Francisco again appeared as a whaling port.

In 1851, however, shore whaling was tried at Monterey. The whales were pursued in boats and when captured were towed ashore where the blubber was removed. In fact the whole experiment was carried on in essentially the same way as it had been done by the New England whalers more than 150 years before. Out of this experiment arose a regular system of shore whaling which in the course of twenty years was carried on from eleven stations.[5] These stations were located along the coast from Half Moon Bay, on the north, to Point Abanda, in Lower California, on the south. They were situated near Half Moon Bay, Pigeon Point, two at Monterey Bay, Carmel

[4] Starbuck, p. 100.

[5] Scammon, p. 247.

Bay, San Simeon, San Louis Obispo, Goleta, Portuguese Bend, San Diego, and Point Abanda. The organization of each party was patterned after that of a whaling vessel, with officers and crew being paid their regular "lay." Many of the whalers were Portuguese and Italians.[6] But like all other shore whaling operations its success was only temporary and the dying out of the industry was soon foreshadowed by the increasing scarcity of whales near the coast. In 1874, Scammon says, "having been so long and constantly pursued (the whales), are exceedingly wild and difficult of approach, and were it not for the utility of Greener's gun (harpoon gun) the coast fishery would be abandoned, it being now next to impossible to "strike" with the hand harpoon."[7] Before 1888 the entire shore fishery had been given up, San Simeon, in 1887, being the last station abandoned.[8]

Though San Francisco first began as a whaling port in 1850, it was not until two decades later that the industry was regularly carried on. There are various references to whaling vessels sailing from that port during the years from 1850 to 1869,[9] but there does not appear to have been any permanent fleet employed until 1869 and the years following.[10] By 1869 the decline of whaling interests was well under way—in fact had gone so far that the Nantucket industry was finally abandoned in that year,[11] though according to Goode's table[12] there was a whaling fleet at Nantucket until 1873. Stonington, Mystic, Greenport, Cold Spring, Warren, Wareham, Fall River, Seppican, Falmouth, Holmes Hole, Providence, Newport, Lynn, Quincy, Mattapoisett, Yarmouth and Somerset,

[6] Scammon, p. 250.

[7] Scammon, p. 248.

[8] Fish Comm. Rep., 1888, p. 44.

[9] Starbuck, pp. 400, 608, 630.

[10] "Whalemen's Shipping List."

[11] Macy, p. 301.

[12] Goode, p. 171.

mustering a fleet of ninety-two vessels in 1850, no longer sent out a single whaler.[13] Thus whaling as a true Pacific coast industry was not regularly established until after the decline of whaling had become marked at the Atlantic ports, and whatever growth was shown was in the face of adverse conditions.

During the succeeding years there were spasmodic movements in the whaling business, as the result of some rise in prices or some new instance of a phenomenal voyage. But on the whole the San Francisco fleet alone showed any steady growth. From 1869 to 1880 the fleet from that port was never larger than eight sail, and during most of the time it numbered only one or two sail. But after 1880 the growth was fairly rapid for a number of years.

The steam whaling vessel was introduced into the fleet in 1880, bringing about a sort of revolution in Arctic whaling. Up to this time the northern fleet had been accustomed to winter in San Francisco or at some other port in the Pacific, spending the time either in refitting or perhaps in short cruises for whales in the milder latitudes. The so-called "lagoon whaling," in the arms and lagoons of Magdalena Bay was a favorite form of employment during the winter season. As early as 1848, fifty ships were anchored there for this purpose, the whaling being done entirely from boats.[14] As soon as spring opened, the vessels went north again to wait for the ice to break up so that they could pass through Bering Strait. In the autumn the vessels returned with their cargoes, which were transshiped to the east from San Francisco, Panama, Honolulu and other points.[15]

With the introduction of the steam whaling vessel, however, arose the practice of remaining in the Arctic during the winter in order to be earlier on the grounds

[13] "Shipping List," 1850. Scammon, p. 241.

[14] Scammon, p. 268.

[15] Goode, p. 26.

when the ice broke up in the spring. And by 1893 one-fourth the vessels whaling in the North Pacific and Arctic Oceans wintered off the mouth of the Mackenzie River.[16] A steamer visited the absent vessels to carry supplies and to receive any oil or bone taken. As a result the interests of San Francisco in the whale fishery could not be accurately measured by the size of the fleet owned there. The greater part of the northern fleet was accustomed to resort to that port as headquarters both for refitting and for transshipment of their cargoes to the Atlantic seaboard.

The facilities for shipment afforded by the transcontinental railroads also had a marked influence on the industry. Formerly all transshipment of cargoes to the home ports had been across the Isthmus of Panama or by vessel around Cape Horn. The railroads from San Francisco changed all this and from a minor whaling port, San Francisco rapidly came to be the foremost whaling rendezvous in the country. True it is that New Bedford still possessed a larger fleet, but a great many of its vessels carried on the business from San Francisco as their headquarters.

Still another favorable circumstance was the establishment of extensive refineries near San Francisco. For some years after the beginning of whaling from San Francisco all the manufacturing of whale and sperm oils had continued to be done exclusively in the neighborhood of the Atlantic ports - largely at New Bedford. In 1883, however, refineries were built near San Francisco,[17] thereby enabling the western owners to find a market for their manufactured products without paying the heavy costs of shipping them east to the refineries of New Bedford. In addition to the refining plants, there were also large works for the manufacture of sperm candles,

[16] Fish Comm. Rep., 1894, p. 153.

[17] Fish Comm. Rep., 1883, p. 327.

so that the western industry in almost every way was made independent of the eastern ports.

Under these favorable conditions the San Francisco fleet grew rapidly after 1880, increasing from three vessels in that year to thirty-three vessels in 1893, about two-thirds of which number were steamers. That the San Francisco fleet should grow while all other fleets were decreasing from year to year may seem unnatural, since all alike had to meet practically the same economic conditions. From all indications the explanation seems to be clearly enough in the fact that the rise of the San Francisco fishery was a transferring of interests. Instead of being owned in New Bedford and New London, and making their headquarters at San Francisco—the eastern interests were transferred to vessels registered directly from the Pacific port.

The fishery from the western coast has therefore almost entirely superseded that from the Atlantic ports. Since 1895 Boston, New Bedford, Provincetown and San Francisco have been the only ports from which whaling vessels were regularly registered, and in 1903 the business at Boston was abandoned. New Bedford and San Francisco alone are now important. Provincetown has only three schooners, all employed in sperm whaling in the Atlantic, along with two schooners and seven barks from New Bedford,[18] and one brig from Norwich, Conn.

At present practically all the large vessels in the whaling fleet operate from San Francisco. The North Pacific-Arctic fleet numbered twenty vessels in 1905 out of a total fleet of forty-two vessels. The principal whaling ground is now along the ice fields of the Arctic Ocean, where the ships cruise from the time the ice breaks up in the spring until winter sets in again in October. The season for Arctic whaling is therefore short, and the pursuit of the whales is at times extremely dangerous.

[18] "Whalemen's Shipping List, 1906."

The dense Arctic fogs are a frequent menace to the boats until the fog lifts. The supplies are carried out from home by tenders which in turn bring back the oil and bone resulting from the season's work. But an occasional closing in of the ice upon vessels but partly provisioned often means hardship and suffering for the whalemen. Thus in the past winter several vessels, having on board some 450 men were imprisoned at Herschel and at Bailey Islands, only about half provisioned.[19] The more serious side of the Arctic fishery, the disasters resulting from encounters with the ice, as in 1871 and 1876, makes one of the saddest chapters in the story of American whaling. The losses resulting from this cause were a powerful factor in bringing about the decline of the business. In other words, the whale fishery of the future, whatever that may be, must almost inevitably be largely the San Francisco or Pacific coast industry, depending on a fair supply and a favorable market for whalebone.

[19] Manchester (N.H.) "Union," July 15, 1906; "Whalemen's Shipping List, 1906.

CHAPTER VI.

The Decline of American Whaling.

Sixty years ago the American whaling fishery was in the full height of its greatest prosperity, with the largest number of vessels ever employed in whaling. Now its glory is gone and the fleet both in number and tonnage of vessels is smaller than at almost any other time since the Revolution. To trace the progress of this decline and the economic changes which have induced it, is one of the most important phases in the history of the whaling industry.

During the height of whaling, the industry had grown with remarkable rapidity to proportions far beyond all expectations. The climax was reached in 1846 when the fleet numbered 736 sail, with an aggregate tonnage of over 230,000 tons.[1] The sudden increase of the fleet in 1846,—an increase of forty-one over 1845 and of ninety-one over 1844—was the result of a demand for more ships in the lucrative, newly opened fisheries for bowhead whales in Okhotsk Sea, along the Kamtchatkan coast and in Bering Strait. But the very causes which had helped to bring about this rapid growth, operated eventually toward the beginning of the decline.

The prosperity continued for several years, almost a decade in fact, until the returning vessels brought such great quantities of oil and bone that the market was glutted and prices of oil fell. Voyages that would formerly have yielded good profits were made at a loss, and the condition of success and prosperity became one of

[1] "Whalemen's Shipping List," Mar. 7, 1905.

uncertainty and anxiety. Almost coincident with this depression came the financial crisis of 1857 with the general depression of industries throughout the country. The whaling industry never fully recovered from the setback it received then. New conditions unfavorable to whaling interests soon arose, and within a few years the decline of the industry had begun, to continue almost without interruption down to the present day.

Before entering into the detailed discussion of the phases and causes of the decline, a general view of its extent may be had from a table showing the size and tonnage of the fleet in a few representative years. The progress from year to year may be seen in the table of statistics for the whole fleet given in Table I of Appendix I, from which these figures are selected:

DECLINE OF THE WHALING FLEET.

	Ships and Barks.	Brigs.	Schooners.	Total.	Tonnage.
1846	680	34	22	736	233,262
1861	450	14	41	514	158,745
1869	223	25	88	336	74,512
1873	153	12	38	203	47,006
1890	65	6	26	97	22,718
1901	27	0	13	40	8,746
1906	25	2	14	42	9,878

The years here given may be regarded as milestones in the decline, since each marks an important downward step. Thus after 1869 the fleet never numbered over 300 sail; after 1873 it never reached 200 again; since 1890 it has been less than 100, and in the last five years it has been below fifty vessels. The same rule also holds for the figures of tonnage.

First, to consider the extent of the decline more in detail. Between 1846 and 1850 there were nearly fifty different ports in southern New England and New York sending out whaling vessels. The fleet averaged over 600 sail each year, bringing in a product with an average annual

value of about $8,000,000.[2] Many of the ports, however, employed less than a half dozen vessels, perhaps only one or two, the industry having been undertaken as a result of the great whaling prosperity beginning in the early forties. The industry was abandoned from some of these minor posts before the climax of whaling prosperity was reached in 1846. Thus there is no record of vessels sailing from the following ports after the dates given:[3]

1841
Hudson, N. Y.
Poughkeepsie, N. Y.
Newark, N. J.
Wilmington, Del.
Bucksport, Me.

1844
Duxbury, Mass.
Freetown, Mass.

1845
Portsmouth, N. H.

1846
Barnstable, Mass.
Plymouth, Mass.
Bristol, R. I.
Bridgeport, Conn.

But most of the ports continued to send out their vessels until a change in conditions began to be felt. The minor ports seemed almost to foretell the approaching depression, for at one after another the business was abandoned, in most cases never to be resumed. The business at a number of these ports was given up while whaling was still enjoying remarkable prosperity at New Bedford and other places. Why it should have been so is hard to tell. The suggestion that the smaller enterprises were crowded out by the larger seems to be refuted by the very nature of the industry and the fact that market prices were steadily rising. The most logical conclusion apparently is that these vessels from small ports really made the large ports their headquarters, and it was only an easy step for them to be transferred or sold to the larger companies operating from New Bedford, Sag Harbor or New London. Hence what is commonly

[2] Scammon, p. 243.
[3] Compiled from Starbuck's records of sailing.

called the first stage of the decline was only a phase in whaling development. Later on, however, it was apparent that the industry was actually on the decline; that the abandonment of the business at different ports was the result of adverse conditions which the small ports were the first to feel. The following table gives the names of the ports and the respective dates of the last recorded clearances:[4]

1848
Somerset, Mass.
Chilmark, Mass.

1849
Quincy, Mass.
Yarmouth, Mass.

1850
New Suffolk, N. Y.

1852
Truro, Mass.

1853
Gloucester, Mass.
Lynn, Mass.

1854
Providence, R. I.

1856
Newport, R. I.

1857
Wareham, Mass.
Greenport, N. Y.
Cold Spring, N. Y.

1858
New Haven, Conn.

1859
Falmouth, Mass.

1860
Fall River, Mass.
Stonington, Conn.
Mystic, Conn.

1861
Orleans, Mass.
Warren, R. I.

1862
Sandwich, Mass.
Holmes Hole, Mass.

1864
Mattapoisett, Mass.

1867
Wellfleet, Mass.

1868
Salem, Mass.
Tisbury, Mass.
Groton, Conn.

1869
Newburyport, Mass.
Nantucket, Mass.

1871
Sag Harbor, N. Y.

1873
Beverly, Mass.

1874
New York, N. Y.

[4] Compiled from Starbuck's records of clearances.

Thus in twenty-five years whaling was finally abandoned from thirty ports, including some of the oldest whaling towns in New England. Practically all the Cape Cod industry was gone except the Provincetown fleet. Nantucket, the queen of whaling ports a century before, had sent her last whaler. All the New York industry was abandoned, even from Sag Harbor, whence it had been carried on almost constantly since the beginning of the previous century. And of the Connecticut ports, New London alone still had a whaling fleet. In short, by 1875 the only important whaling interests still remaining were the Provincetown fleet of schooners and the fleet owned in what might be styled the New Bedford district, comprising the ports of New Bedford, Fairhaven, Dartmouth, Marion and Westport. Edgartown had one vessel; Boston, three; New London, six; and San Francisco, two. The fleet then numbered 163 sail, aggregating 37,733 tons—a decrease of over seventy-five per cent in numbers and over eighty per cent in tonnage in less than thirty years. Of this fleet nearly two-thirds, 107 vessels, belonged in New Bedford alone.

But as sweeping as these changes had been, the downward movement was not complete. Out of the half score of ports still carrying on whaling in 1875, only New Bedford, Provincetown, Boston and San Francisco were to continue until the end of the century, the others met the same fate as had befallen many before them—the inability to carry on whaling any longer as a profitable business. Fairhaven dropped out in 1879, Westport in 1881, Dartmouth in 1882, Marion in 1886, New London in 1893, Edgartown in 1895, and Boston in 1903. Stonington, from which whaling was resumed in 1878, after a lapse of seventeen years, again dropped from the list in 1893. During the whole period none of these ports was important, since there was hardly a year when any individual fleet exceeded five sail, or the total fleet from the minor ports was over a score of vessels.

On January 1, 1906, there were three whaling ports employing fleets as follows: New Bedford twenty-four vessels, tonnage 5,618; San Francisco fourteen vessels, tonnage 3,626; Provincetown three vessels, tonnage 340. Norwich, Conn., again appeared as a whaling port with one brig of 294 tons, after a lapse of seventy years. For the ten years ending 1905 the whaling fleet has averaged fifty-one sail with a tonnage of 10,184 tons, yielding an average annual product valued at nearly $1,000,000. When compared with the annual averages for a half century ago it seems hard to realize that the figures apply to the same industry.

Accompanying the decline in the size of the fleet and the amount and value of the annual product of the whale fishery, there has been a similar decline in the market price of oil. The price of bone, however, has steadily risen, a fact of the utmost significance to the industry. After 1847 the price of sperm oil never fell below $1.00 per gallon for thirty consecutive years—a good part of the time it ranged between $1.30 and $1.60 per gallon, while after the war it rose as high as $2.55 per gallon.[5] During the same period the price of whale oil fluctuated generally between 50 and 80 cents per gallon, going as high as $1.45 per gallon at the close of the war. Since about 1875, though the prices of sperm and whale oils have varied up and down from year to year, the tendency on the whole has been a steady decline. In 1895 whale oil went the lowest that it has been since 1834, falling to 28 cents per gallon, and in the year following, sperm oil fell to the lowest price recorded in a hundred years, 40 cents per gallon. At present (1905) the average prices are: sperm oil 46 cents per gallon, and whale oil 31 cents per gallon.

On the other hand the price of bone has tended steadily upward, though showing wide fluctuations from year to

[5] See complete table of average annual prices, Table V of Appendix I.

year. Thus for several years, just in the height of whaling prosperity, the average annual price of bone was less than 40 cents per pound. In 1891 it touched $5.38, and in 1904, $5.80, per pound, the latter being the highest annual average ever recorded. In 1905, the average price was $4.90 per pound. Often during recent years only the bone has been saved, the remainder of the carcass being cast adrift if other whales are in sight,[6] because the bone is so much more valuable than the oil. It seems almost unquestionable that with the low prices and limited demand for oil the whale fishery would cease entirely but for the more valuable whale bone.

Practically no other industry in the country can present any parallel to the revolution that the whale fishery has undergone in the space of sixty years. From a business representing an invested capital of tens of millions of dollars, and giving employment to tens of thousands of men, it has fallen to a place where whaling is no longer of any great importance even to the communities from which it is carried on. In fact whaling is kept alive at all only by the demand for a product which a century ago was regarded as hardly worth saving. To work such changes in a once great industry powerful factors have been at work, undermining from all sides the foundation on which whaling prosperity rested.

One of the most potent causes working toward the downfall of whaling is found in the nature of the industry itself—the uncertainty of the business. It would be hard to find any other business, employing so much capital, where the uncertainty of profitable returns is so great as has always been the case with the whale fishery. One year may bring successful voyages and good profits, only to be offset the next year by heavy losses of life, money and property. This has been especially true since the opening of the Arctic fishery in 1848. To illustrate

[6] Fish Comm. Rep., 1893, p. 202.

the point, in April, 1866, two New Bedford ships, the Corinthian and the George Howland, arrived within five days of each other—the gross value of each of the two cargoes was $250,000, and it is said that $125,000 profit was made on each, on a capital of $25,000. Again, in 1886 the bark Europa returned from a voyage in Japan and Okhotsk Seas with a cargo valued at $248,000.[7] On the other hand, out of sixty-eight vessels due to arrive in New Bedford and Fairhaven in 1858, forty-four were calculated as making losing voyages, representing an aggregate loss of about $1,000,000.[8] And in 1871 the entire Arctic fleet of thirty-four vessels was completely destroyed by pack ice, entailing an absolute loss of nearly $2,000,000, including vessels and cost of outfitting. In an industry subject to such fluctuations, however, a rapid decline and withdrawal of capital was inevitable as soon as other conditions became unfavorable.

As long as the prices were high and the demand was great and fairly certain, the chance of large profits from phenomenal voyages was sufficient to tempt continually increasing investments even in the face of all natural risks.

In addition to the uncertainty of the business, various changes had been at work to necessitate the assumption of greater risks to carry it on. The first vessels whaling in the Pacific made voyages in two or two and a half years, and their fitting did not represent so large an outlay. Thus the first Pacific whaler, the Beaver, 240 tons, sailing from Nantucket in 1791, represented a whole cost of $10,212 for the ship completely fitted for the voyage. But as the industry was pursued with increasing vigor whales became scarce and more shy each year, making it harder to secure a full cargo, the voyages were increased in length and duration to three, four and even

[7] Ellis, p. 450.

[8] Starbuck, p. 140.

more years each. The vessels were larger, 300 to 500 tons about the middle of the last century, and the cost of fitting for a three years voyage was increased to $30,000 to $60,000 each.[9] The rivalry of different captains in trying to secure the most luxurious fittings often added unnecessarily to the expenses of fitting and refitting. As these changes were going on the North Pacific and especially the Arctic fisheries were becoming more and more the only profitable cruising grounds. But there the danger of losses was increased because of encounters with the ice, and every vessel wrecked meant a greater financial loss than before. The two factors of uncertainty of profits and risk of losses of whole investments, were strong arguments for capital to seek employment elsewhere.

Outside the fishery itself several factors were at work to accomplish its downfall. In 1849 gold had been discovered in California, and the great rush to the gold fields began. For years it had been the custom among the Pacific whalers to touch at some Pacific port, either for water, to refit, or to spend the "between seasons" when the northern grounds were closed by ice. The whalers offered an easy means of reaching California and its gold deposits. Starbuck says[10] that whole crews apparently shipped merely as a cheap means of reaching the mines, that desertions from the ships were numerous, often in such numbers as to actually cripple the efficiency of the ship. "In this way many voyages were broken up and hundreds of thousands of dollars were sunk by the owners." Ships were fired by mutinous crews, some even entirely destroyed. In fact, so complete was the demoralization of the fleet that captains and officers left their ships to seek for gold.

The rise of the cotton cloth industry was also a potent

[9] Scammon, p. 216.

[10] Starbuck, p. 112.

factor in hastening the decline of whaling, though to what extent it operated is hard to tell. To suggest what might have happened under different economic conditions fifty years ago may appear to be dangerous speculation. Yet had not the cotton mills sprung up, it seems safe to say the whaling fleet would have decreased less rapidly even in the face of increasingly adverse conditions. This is especially true of New Bedford, from which port more than half the fleet hailed subsequent to 1860. For many years the whale fishery and its allied industries of oil refining, cordage manufacture, boat and ship building and such like, had been the most important, almost the only important, business interests in the city. And the capital was repeatedly employed in the whaling business because the investors had grown up with it and had come to accept whaling ventures as the most natural thing in the world.

About 1846, however, in the very year when whaling reached the climax of its glory, the manufacture of cotton goods was begun in New Bedford. Cotton milling was successful and profitable almost from the very start, and additional mills were put up from year to year. Among the names of the early financial promoters of cotton manufactures are many which had long been intimately associated with the whaling industry. As each additional year meant increasing risks on investments in whaling, the surer field for capital in the local mills must have inevitably drawn capital away from the former industry. How great this factor was can never be known, but that it was an important one seems unquestionable. The "Whalemen's Shipping List," for Febuary 4, 1873 says[11] "The continued purpose to sell whalers . . . shows the judgment of those who have long and successfully been engaged in the business . . .

[11] "Whalemen's Shipping List," Annual Review for 1872, February 4, 1873.

that it has become too hazardous, and its results too uncertain to continue it, when capital is promised a safer employment, and surer rewards in enterprises on the land, and in our own city where the products of two large cotton mills equal very nearly the aggregate value of the imports of the fishery yearly." In that year alone the records show that no less than twenty vessels were sold out of the whaling fleet because the business no longer warranted the continuance of the investment. The mills at home, however, meant a sure income. But it is not altogether unfitting that out of the decline of the great whaling interests of New Bedford should grow the industry, which, above all others, was destined to save the city from the fate of being a deserted fishing village—the rise of the cotton mills.

As great and potent as were all these factors, however, the most important has yet to be mentioned—the introduction of the new illuminant, kerosene. For many decades previous to 1860 oil had been the most valuable product of the fishery, and one of its chief uses had been as an illuminant, both in sperm candles and in the "whale oil" lamps. Much of the export trade had been to supply the European demand for oil for lighting purposes. Its use as an illuminant, however, had been diminished early in the last century by the introduction of gas distilled from coal. Coal gas seems to have been more generally adopted in spite of Scoresby's statement[12] that where coal was not cheap gas could be manufactured from whale oil at about the same expense; and that having many advantages over the former, it was preferred. As early as 1819 Ipswich, Norwich and other towns in England lighted their streets with gas made from oil.

In this country there does not appear to have been any very severe encroachment on the uses of whale products as illuminants until after the discovery of petroleum in

[12] Scoresby, p. 428.

1859. The date of opening the first oil well in Pennsylvania may be regarded as the day when the fate of the whale fishery was decided. Even in the face of the other unfavorable conditions, the fishery must certainly have prospered but for the discovery of petroleum. The population of the country was increasing; the people would have had light without much regard to the necessarily high prices of oil, and the market demand would undoubtedly have increased beyond the supply. At this critical time the Pennsylvania oil fields were discovered and at once a plentiful, and cheap illuminant was in the market as a competitor of the whale oils. As soon as the processes of refining were improved, the disagreeable and dangerous qualities were no longer a handicap to kerosene and it became a relentless rival of the other oils. The struggle for supremacy was fierce but short and ended in the only way that it could—in favor of the better, more easily obtained and then seemingly inexhaustible kerosene. Sperm candles were dedicated to ornamental uses and whale oil lamps were discarded to become interesting relics for succeeding generations. But the encroachment of petroleum products on the domains formerly monopolized by whale oils was not to end with superseding the latter in their use as an illuminant. Kerosene came rapidly into general use. Then lubricating oils began to be made from the residuum; and finally the utilization of the wax or paraffine in making candles and in other arts, robbed the whale products of their last strongholds in the markets of the world.

Just after the introduction of petroleum oils, as if to make sure of the overthrow of whaling prosperity, the Civil War broke out. Always adversely affected by warfare, no industry was then less able to withstand the effects of war than was the whale fishery. A large proportion of the fleet was at sea. Many of the vessels were in the Pacific on voyages of three or four years

duration, and often did not return to port for months at a time. If they did return to port the lying idle there was little better than risking capture by Southern privateers.

The Atlantic whalers felt the effects of war very early in the struggle, Southern privateers capturing vessels as early as 1862. The feeling of the whalemen toward the Southern depredations is illustrated in a quotation from the "Shipping List," for January 13, 1863. In the annual review for 1862 it says "That Southern pirate, Semmes, has already made frightful havoc with whaling vessels, and his piratical ship—the Alabama—threatens to become the scourge of the seas." These operations were carried on throughout the war, especially by the famous Alabama and the Shenandoah. The latter entered Bering Sea late in the war, captured and burned twenty-five vessels, mainly large ships, and took four others for purposes of transportation.[13] No less than fifty whaling vessels were captured or destroyed during the war—more than half of which were owned by New Bedford merchants. Many other vessels were sold—forty to the government for the famous Charleston stone fleet—and others were transferred to the merchant marine. On January 1, 1861, the whaling fleet had numbered 514 vessels with an aggregate tonnage of 158,745 tons. Five years later, January 1, 1866, there were 263 vessels with a tonnage of 68,535 tons—a decline of almost 50 per cent in the number of vessels and of over 60 per cent in the tonnage. At least half of this decline was the direct result of the war.

At the end of the war the depleted stocks of whale products, and the prevailing high prices greatly aided in reviving the industry. Vessels that had been lying idle at the wharves were again fitted and sent out, while some new ships were added to the fleet. It seemed as if prosperity would once more smile on the industry, but

[13] Pease, p. 31.

the conditions which had been working against the fishery before the war were still operating with renewed vigor. The merchants were becoming more wary and cautious in their whaling ventures. Then came the disaster of 1871, destroying the Arctic fleet of thirty-four vessels, and though the Arctic fishery was renewed with twenty-seven vessels in 1872 and twenty-nine vessels in 1873, greatly increased rates of insurance were added to the already heavy burden of the whaling interests.

The fact that the whale fishery had entered upon a steady and permanent decline could no longer be denied. The generally adopted use of petroleum oils had destroyed the chief market for two-thirds of the products of the industry—sperm and whale oil. But the steadily increasing value of whale bone was a powerful incentive to carry on the business, though not sufficient to stem the tide. The decline has continued almost without interruption down to the present time with the constant operation of the economic changes by which the decline was induced. From time to time there have been revivals of activity as the result of temporary advances in prices or the reports of phenomenal voyages. But year after year the decline has continued, carrying whaling steadily down toward the lowest rank of commercial insignificance.

CHAPTER VII.

Apparatus and Methods of Capture; Boats; Crews; and Whale Products and Their Uses.

At first thought a discussion of the instruments used in whaling seems to have but little relation either to the history of the industry or to its various economic phases. Yet in the course of time the growth of the whale fishery has resulted in innovations in implements and methods which seem worthy of at least brief notice. At other times the successful continuation of the fishery has depended largely on the improvement of implements of capture.

The primitive method of capturing whales appears from all accounts to have been by means of the harpoon and lance. It is not quite clear, however, whether the line was at first used with the harpoon to fasten to the whale. Some writers say that the Indians of this country were in the habit of capturing whales by the use of wooden harpoons to which logs of wood were attached as floats, and that by repeated attacks they occasionally succeeded in harrying a whale to death. It is also sometimes stated that the American colonists followed the Indian mode of capture.[1] But the harping iron is referred to even before the first settlement of New England.[2] In the first account of whaling at Nantucket Macy[3] tells of the harpoon being *wrought*, and as early as 1669, in an account of whaling ventures from Long Island, it is recorded that of two whales attacked, "the iron broke in

[1] Scammon, note, p. 204.
[2] Starbuck, p. 6.
[3] Macy, p. 28.

one, the other broke the warpe."[4] Hence it seems unquestionable that long before whaling became at all important as a regular industry, the implements used in capture had the essential characteristics of those that were to be used for many decades thereafter.

Scoresby[5] says that as early as 1607 "the harpoon consisted of a barbed or arrow-shaped iron dart, two or three feet in length with a wooden handle and a line" three hundred fathoms long. The hand harpoon could be used effectively at distances up to fifteen yards.[6] With the exception of some small changes and additions to the barbs, and variations in dimensions, the harpoon is still essentially the same weapon as it was then. Now, three centuries later, the initial step in the capture of a whale remains unchanged, for the harpoon has always been and is still used to fasten the whale to the boat. Along with the harpoon and line a hand lance was used, it consisting of an iron spear with a wooden handle ten or twelve feet long. These implements were used almost exclusively until well along in the eighteenth century.

The first change was in the introduction of the harpoon gun to replace the old method of hurling the harpoon from the hand. It was followed by the bomb gun, the darting gun, and by the whaling rocket, while the hand lance gave place to the bomb lance. The whaling or harpoon gun, intended to shoot harpoons, was a British invention about 1730. Its invention appears to have been prompted by the increasing shyness of the whales in the northern fishery, and the consequent need of some instrument to facilitate the capture. Beginning with the year 1700 the whales had almost abandoned the shore grounds previously frequented and had retreated to the sheltered situations afforded by the ice fields.[7]

[4] Quoted by Starbuck from N. Y. Col. Record, III, p. 183.

[5] Scoresby, p. 173.

[6] Macy, p. 220.

[7] Scoresby, p. 181.

But the old whalers were reluctant to adopt the gun and it apparently fell entirely out of use for Scoresby says,[8] "The method of shooting harpoons . . . from a sort of swivel-gun, was, in the year 1772, reintroduced. Indeed this instrument had been so long laid aside, that the present was considered a new discovery." And the inventor was given a premiun of twenty guineas by the Society of Arts. These early harpoon guns were heavy swivel-guns, mounted in the bow of the whale boat. Their chief advantage was in the power to launch the harpoon at distances as great as eighty-four yards.[9] The weight of the line attached to the harpoon, however, deflected the missile to a serious extent. The gun was first used by Scotch whalers.[10] It was occasionally used by Americans but never came into general use. The American whaler preferred the later "shoulder guns" in spite of the fact that they often fired "aft" with more emphasis than they did forward.[11]

Shoulder guns were an American invention; meeting the demand for a weapon to kill the whale as well as to fasten it to the boat. They appear to have been introduced at about the same time as the bomb lance. The whaling gun[12] was invented and introduced into the market about 1850. From that year onward advertisements appear in the "Whalemen's Shipping List" setting forth the superior qualities of this new instrument for killing whales. The American guns were of two sorts, the plain bomb gun and the so-called darting gun. Their invention seems to have been prompted by the same conditions that led to the English invention of 1730—the pressing need for improved facilities for killing the whales.

[8] Scoresby, p. 79.
[9] Scammon, p. 27.
[10] Scammon, p. 226.
[11] Goode, p. 252.
[12] Ellis: History of New Bedford, p. 419.

In 1846 one Robert Allen of Norwich, Conn., invented the first bomb lance, to kill whales by explosives instead of by the old hand lance thrust into the vital parts of the whale.[13] Used with a bomb gun, firing the missile from greater distances, the bomb lance became a much more effective means of killing whales than had ever before been available. There have been several types of bomb lances and bomb guns. Of the latter some of the best known are the original muzzle-loading "Brand" gun, the Pierce & Eggers gun—probably the most popular and effective gun ever introduced, and the Cunningham and Cogan gun, largely used by the steam whaling vessels in the Arctic regions.[14] With these guns bomb lances of varying sizes are used, a common length being about twenty-one inches, while the diameter and the size of the charge depends on the particular gun employed.

The increasing scarcity and shyness of whales, combined with the desire for sure and more ready means of killing whales, resulted in the invention of the whaling gun and bomb lance. In the same way the exigencies of Arctic whaling led to still further perfection of whaling implements. After the introduction of the bomb lance it had been the custom[15] to fasten to the whale with the harpoon, and then from a safe distance to kill it with a bomb lance. Hand lancing had almost gone out of practice by 1875.[16]

By that time, however, Arctic whaling had become important and profitable. The great baleen or bowhead whale gave excellent bone as well as oil that was next in quality to sperm oil. But when fastened to with a common harpoon the whales might succeed in getting under the ice before there was any chance to kill them, even with the bomb gun. As a result, many valuable whales, as well as much fishing apparatus was lost. The

[13] Goode, p. 253.
[14] Goode, p. 253.
[15] Goode, p. 254.
[16] Scammon, p. 228.

darting gun was invented about 1880, expressely to meet the needs of this fishery, by Captain Eben Pierce and Mr. Patrick Cunningham of New Bedford.[17] The gun consists of a stockless barrel, of gun metal, attached to a regular wooden harpoon pole. A harpoon with whale line attached fits loosely in lugs on the side of the barrel. The apparatus is loaded with a charge of powder and a bomb lance and then the whole is darted at the whale. The harpoon entering the whale's body springs the trigger, which appears as a long wire rod projecting beyond the muzzle of the gun, and the bomb lance is automatically discharged into the whale. Under ordinary circumstances the whale is killed or severely wounded by the explosion of the bomb, at the same time that it is fastened to the boat by the harpoon and line. In this way whales are rarely lost. Were it not for the darting gun, however, whaling could not be successfully carried on amid the Arctic ice packs, now the most important whaling ground for the American fleet.[18]

The most destructive weapon ever used in killing whales is the whaling rocket, invented about 1880. It consists of a large rocket, harpoon and bomb lance, having a total weight of about eighteen or twenty pounds. It was intended to be fired from the deck of the whaling vessel itself, thus doing away with the necessity of pursuit in boats. But as far as records go the rocket does not appear to have come into very general use.

Aside from these regular whaling implements, nets, electricity and poisoned harpoons have been advanced as experiments in capturing whales. Scoresby in writing of the methods of capture at the opening of the seventeenth century says,[19] "The Dutch inform us that the English made use of nets made of strong ropes for the purpose."

[17] Goode, p. 254.

[18] For a more detailed discussion of this gun see Goode, p. 254, or Scammon, p. 228.

[19] Scoresby, p. 173.

But there is no reference to their use in later years. In this country nets of strong manila twine were tried at the mouths of the rivers emptying into Cumberland Inlet.[20] At one setting 500 white whales or grampuses were captured and killed. Other experiments were tried in the same year and the year following, but the scheme does not seem to have been satisfactory to the promoters, for it was abandoned.

In 1852 the United States patent office granted a patent on a whaling apparatus which was to employ electricity. It consisted of a wired harpoon to be used from a copper sheathed boat, making a circuit from the generating machine in the boat through the wire, whale, water and boat to the machine again, The device was calculated to facilitate the killing of whales by electrocution as soon as struck by the harpoon.[21] But as far as is known it was never used, though one author says,[22] "In 1851 the first experiments in killing whales by electricity were tried."

The use of harpoons poisoned with prussic acid is variously attributed to the French and to the Scotch, and it is also claimed that it was never used by the American whalemen. Goode[23] states that as early as 1833 Nantucket whalemen went equipped with poisoned harpoons, but that they were not used, as the crew "were frightened by reports concerning the death of men from handling poisoned blubber." Such news spread rapidly through the whale fleet and suddenly brought to an end a practice which, almost beyond doubt, must have proved a very effective means of killing whales.

The boats and vessels engaged in the whaling fleet have also undergone marked changes since the fishery began.

[20] Goode, pp. 247–248.
[21] Goode, p. 250.
[22] Ellis, p. 420.
[23] Goode, p. 248

In the whaleboats themselves the two centuries of American deep-sea whaling have witnessed little change. They are still the same round-bottomed type, pointed at both ends, to facilitate movement either forward or backward, and propelled both by oars and sails. About the only change has been in size, increasing from a length of twenty feet, about 1720, to an average of about twenty-eight feet at present, though whaleboats as long as thirty-eight feet have been used at times.[24] They are usually made of white oak, cedar, spruce or hard pine, weigh about 500–600 pounds and cost upwards of $100 each. They are the most seaworthy small craft known, yet their usage is so severe that they usually last but a single voyage.

Launches propelled by steam were first introduced into the Norwegian whale fishery, with guns mounted on deck to throw the projectiles.[25] And about 1880 American whalers tried the experiment of using whaling rockets from steam launches. The noise made by power boats, however, is a disadvantage, and launches, wherever employed, have been used mainly to tow whaling boats near the whales, to aid in approach during calms when sails are useless and to tow dead whales to the vessel. So far as is known no launches are at present employed by the whaling fleet.[26]

The whaling vessel has undergone a marked evolution since the beginning of deep-sea whaling about 1715. The earliest vessels fitted for whaling "out in the deep" were sloops of thirty to forty tons burden.[27] The size was gradually increased to fifty, sixty and seventy tons, as the industry grew and voyages were made longer; and, probably, by 1730, schooners had been added. The next

[24] Goode, p. 240.

[25] Goode, p. 246.

[26] Letter of Mr. George R Phillips, editor of the "Whalemen's Shipping List."

[27] Macy, p. 49.

step appears to have been about twenty years later, for in writing of Nantucket whaling in the period about 1750, Macy says,[28] "They began now to employ vessels of larger size, some of 100 tons burden, and a few were square rigged." At that time Nantucket was leading in everything that pertained to the whale fishery, hence the growth of the Nantucket fleet may be regarded as typical of all. For over a century thereafter the changes in whaling vessels were almost solely in size. In 1791 the Pacific fishery was opened, and immediately the longer voyages and the desire for larger cargoes led to the employment of bigger vessels. The first Nantucket ship sailing to the Pacific, 1791, was of 240 tons burden.[29] By 1820 Nantucket had seventy-two ships averaging over 280 tons each.[30] Ships, brigs and barks now rapidly came to predominate in the whaling fleet, and before 1850 vessels of 400 to 500 tons burden were not unusual.

It has already been seen how the development of Arctic whaling resulted in important modifications in the nature and quantity of the whaling apparatus. It extended in a similar way to the construction of the ships, for the encounters with the ice necessitated even more sturdy and substantial vessels than had ever before been used. As Arctic whaling became more common it was soon found of prime importance to enter and leave the ice-frequented regions with the least possible delay. For nearly fifty years steam vessels had been used in the merchant marine of this country and of England. The application of steam to whaling vessels suggested the possibility of a quicker voyage to the whaling grounds, greater facility in cruising for whales among the ice floes, and a longer stay with less danger of being caught in the pack ice as winter sets in. In 1880 the first steam propelled vessel used in the American whale fishery was

[28] Macy, p. 64.
[29] Macy, p. 216.
[30] Starbuck, p. 95.

added to the New Bedford fleet.[31] The voyage was very successful, securing in one season a cargo valued at $100,000, and fully demonstrating the practicability of using steam in the whaling fleet.

It seems strange, however, that the experiment had not been tried before, for the English had sent out a steam whaler to Davis Strait as early as 1857.[32] The experiment proved so advantageous that new wooden steam vessels were built and old vessels were converted, so that in 1869 the whole Dundee fleet was composed of screw steamers—ten vessels in all.[33] The explanation for the American tardiness probably lies in the decline of American ship building, then just beginning, and especially in its almost total suspension immediately after the Civil War. The first steam whaler was soon followed by others and the catch was temporarily increased by the new methods. Now the fleet of steam whalers is one of the most important in the whole fishery.

The vessels comprising the fleet during the last two decades may be divided into the two classes, sailing vessels and steamers. The sailing vessels are mainly schooners and square rigged vessels, no sloops having been employed for many years. The schooners cruise chiefly in the Atlantic grounds and the others are engaged in the Pacific. The steam vessels are almost without exception entirely engaged in Arctic whaling from San Francisco as their port.

The size of the fleet at present is, of course, but a mere fraction of what it was fifty or sixty years ago. It is only natural, therefore, to wonder what became of the hundreds of ships which were once engaged in the whale fishery. Probably the greatest number would be accounted for by wrecks in all parts of the world. For example, in the autumn of 1871 a sudden setting in of the pack ice de-

[31] Ellis, p. 433.
[32] Goode, p. 237.
[33] Simmonds: Animal Products, p. 369.

stroyed thirty-four ships, the whole Arctic fleet, in the greatest disaster known in the history of whaling.[34] Again, in 1876, twelve vessels were destroyed in almost exactly the same way. Forty whalers went to make up a part of the famous stone fleet sunk by the United States government in the attempt to blockade Charleston harbor during the Civil War. Many of the whaling vessels were sold at different times into the merchant marine, or were withdrawn from service and broken up in various ports. And finally a good many vessels were destroyed at sea by Confederate cruisers during the Civil War; while these different causes were at work to decrease the fleet, every year after 1860 saw fewer and fewer new vessels added to replace the loss.

The crew of a whaler varies in size and personnel according to the number of boats carried. An average complement consists of a mate, a boat steerer and four or five seamen for each whale boat, in addition to the captain, cooper, carpenter, cook, steward and often blacksmith and cabin boys. Thus a ship carrying four boats would have a crew of about thirty-two men.

At first the colonial whaling vessels were manned almost entirely by colonists and Indians. But as the fishery grew, and the number of vessels increased, the supply of hands was inadequate. As early as about 1750 the Nantucket fishery had attained such proportions that it was necessary to secure men from Cape Cod and Long Island to man the vessels.[35] Less than a century later the crews were made up of representatives of all nations, while only the principal officers were Americans.[36] Goode says, "Captain Isaiah West, now eighty-six years of age (i. e. in 1880), tell me that he remembers when he picked his crew within a radius of sixty miles of

[34] Starbuck, p. 103.
[35] Macy, p. 61.
[36] Scammon, p. 255.

New Bedford; oftentimes he was acquainted, either personally or through report, with the social standing or business qualifications of every man on his vessel; and also that he remembers the first foreigner—an Irishman—that shipped with him, the circumstance being commented on at that time as a remarkable one."[37] The Spanish, Portuguese, Dutch, Swedish, Norwegian, English, Scotch, Irish, in fact men of almost every country in Europe, from Africa and Asia, from the Sandwich Islands, from New Zealand and other Pacific islands, were to be found in the whaling fleet during the days of its greatest prosperity. After the development of deep-sea whaling the vessels made a quite general practice of touching at the Azores or Cape Verde Islands to obtain supplies and complete their crews, if full crews had not been shipped at the home port.[38]

The great variety of nationalities represented in the fleet gave the whaling ports, and especially New Bedford, a foreign air, for more or less of the foreigners were in port the greater part of the time. In fact a part of New Bedford near the south end of Water Street became known locally as Fayal, from the large number of Portuguese, from that and other ports, living in the vicinity.[39] Even at the present day the mere casual observer on the street can not fail to notice the unmistakable sturdy figure and swarthy skin of the "Western Islanders," making an important element in the population.

It is still true that the Americans in the whaling fleet are generally the officers, while the crews are made up of the different nationalities of foreigners. So great has been the change in the industry where once "New England's best sons were trained."

Sometimes the men in the crew have been paid regular wages at so much per month, but the more common

[37] Goode, p. 220.

[38] Scammon, note, p. 255.

[39] Ricketson, p. 55.

custom has always been the famous "lay," or certain share in the proceeds of the voyage. This system, as applied to the crews of whaling vessels, matured late in the eighteenth century. But in reality it was nothing new, being rather only an adaptation of the co-operative system of shore whaling in vogue at the eastern end of Long Island as far back as the middle of the seventeenth century. The prices of oil and bone were generally agreed upon before the voyage began, and were placed low enough to give a safe magrin of profit above any ordinary fluctuation in the market. Average "lays" varied from about $\frac{1}{12}$ for the captain to as little as $\frac{1}{175}$ for a green foremast hand. Of the system of "lay" wages, Weeden[40] says, it was "The best co-operation of capital, capitalizer and laborer ever accomplished." But so far as the laborer—the ordinary seaman—was concerned, the system was not so perfect. It was not at all unusual for the foremast hand to receive as little as two or three dollars, sometimes nothing at all, as his share. True it is that there had been advances during the voyage, but at best the total return was exceedingly small when one considers the dangers and hardships, the poor food and confined quarters on shipboard for voyages of often three or four years' duration. Former whalemen state that even on a lay of $\frac{1}{145}$, their share of the proceeds from an eighteen months voyage was seldom more than two hundred and fifty dollars. All they received in addition was their food, and food of such a character that they "would not have touched it at home." A "lay" of $\frac{1}{175}$ in a cargo valued at $100,000 is only $572. Divide this figure by three or even two, representing the years ordinarily taken by such a voyage, and the disproportion between the risk and the return appears at once. Furthermore, the cargo worth $100,000 was not very common.

Deep-sea whaling began from Nantucket about 1715

[40] Weeden: Econ. and Soc. History of New England, Vol. I, p. 430.

with sloops of thirty to forty tons going to the "Southward," and later to the Grand Banks. By 1850 ships of 400 to 500 tons were whaling in the Arctic beyond Bering Strait. Between these two dates many grounds were frequented, soon exhausted and abandoned for others. The principal whaling grounds have been taken from Scammon as follows:[41] For sperm whales in the Atlantic the order of occupation was approximately as follows: Carolina coasts, Bahamas, West Indies, Gulf of Mexico, Caribbean Sea, Azores, Cape Verde Islands, and the coast of Africa. In the Pacific Ocean the order was: South American coast—Chili and Peru, west to Juan Fernandez Island and the Galapagos group, known as the on-shore ground; off-shore ground, lying between longitudes 90° and 120° west and latitudes 5° and 10° south; about the different groups of islands, as the Sandwich Islands, the Fiji, Society and Navigator groups; in the China Sea and along the Japan coasts; the California coast, and the northwest coast of America. In the Indian Ocean, Madagascar, mouth of the Red Sea, Java, Malacca Straits, and into the Pacific about Australia, Tasmania and New Zealand. Practically all these sperm whaling grounds are in warm latitudes, either tropical or temperate, while the right whaling grounds will be seen to lie generally in colder regions. The northern grounds for right whales included the Atlantic coast from Newfoundland to the Bahamas, Davis Straits, the coast of Greenland, about Spitzbergen, Baffin's Bay and Hudson's Bay. In the Pacific, the northwest coast of America, including Bering Sea, the coast of Kamtchatka, in Okhotsk Sea, Japan Sea, and through Bering Strait into the Arctic Ocean were the places most frequented. The southern grounds included, in the Atlantic, the Brazil Banks, the coast of Africa, the coast of Patagonia, and about the various island groups, as the

[41] Scammon, p. 214–215.

Falklands, Tristan d'Acunha, etc., and in the Pacific the coast of Chili, Australia and New Zealand. Many of these grounds included great stretches of ocean within which the favorite feeding grounds were found. Most of them were long since abandoned because of the practical extermination of the whales.

It is difficult to tell the precise date when each of the different whaling grounds was first visited, but the dates of the more important advances are preserved in the records. Previous to 1791 all the whaling was confined to the Atlantic, and until about 1773 or 1774 it had been wholly in the North Atlantic.[42] In 1791 the first whaling vessels went to the Pacific—six from Nantucket and one from New Bedford.[43] The "on-shore" grounds were the only ones visited for a number of years. The "off-shore" grounds were visited about 1818,[44] and within three years over fifty ships were cruising in that region. In 1820 the first vessels sailed for the Japanese coast, and by 1822 between thirty and forty vessels were whaling there.[45] From that time on the whalers spread rapidly to all parts of the Pacific and Indian Oceans. In 1835 whaling was begun by a Nantucket vessel on the great ground along the northwest coast.[46] And in 1848 a Sag Harbor whaler passed through Bering Strait into the Arctic,[47] thus completing the last stage of advance in the pursuit of whales. As early as 1835 the Nantucket fleet went mainly to the Pacific, and after 1840 it went almost entirely to those grounds, while before 1850 a large proportion of the New Bedford fleet had followed this example. Since that time the Arctic grounds have been frequented each year by an increasing proportion of the

[42] Macy, p. 54.
[43] Starbuck, p. 90.
[44] Macy, p. 217.
[45] Macy, p. 218.
[46] Scammon, p. 212.
[47] Starbuck, p. 99.

fleet, though for the last decade or two there have still been some vessels cruising in the North Pacific in addition to a small fleet from New Bedford, Provincetown and an occasional other port, sperm whaling on the old grounds in the Atlantic.[48]

The chief products of the whale fishery are, as is well known, sperm and whale oil and whalebone, with the occasional product ambergris. Up to about 1860 sperm oil was the most valuable and most important of the whale products. It comes solely from the sperm whale, a large whale yielding as much as 100 barrels of oil,[49] about one third of the total coming from the head. Much of the annual importation of sperm oil was formerly consumed in the manufacture of sperm candles. At present its chief use is in making refined oils for lubricating. Whale oil includes the oil from all other varieties of whales, as well as oil from the blackfish, the porpoise and even the walrus. It was formerly much used as an illuminant in the old-fashioned vile-smelling, "whale oil" lamp, but it is now chiefly used in the tanning of leather, in the preparation of coarse woolen cloths, in the manufactures of soft soaps, and of coarse paints and varnishes where it gives a strength of "body" more resistent to weather than do vegetable oils; with tar it is used in ship work, making cordage and other industrial processes; but perhaps its most important use is in making heavy lubricating oils. It is worth about two-thirds as much as sperm oil. Since the opening of the Arctic fishery a large part of the whale oil has come from the right whale—some of which yield as much as 230 barrels of oil.[50] The refuse of whales has also at times been used in making glue and in fertilizers under the name of guano.

[48] Fish. Comm. Rep., 1801, p. clxxiii. "Whalemen's Shipping List," Annual Reviews, 1880–1906.

[49] Macy, p. 221.

[50] Macy, p. 223.

In the early days of whaling, in fact for many years after deep-sea whaling was begun, both the trying out of oil from the blubber and the refining was done on shore. Later trying out was done on board the vessels and the oil was brought back ready for the refineries. In the refining processes the oil is first heated to make the pieces of blubber and foreign matter settle. The clear oil is then subjected to a freezing process which partly granulates it. The freezing is followed by straining through cloths and subjection to pressure to separate the solid matter or "foots"—spermaceti from sperm oil and whale's foot from whale oil. The various grades of oil are then obtained by heating, pressing and the addition of chemicals to clarify and bleach them. Oils for delicate mechanisms, as for watches and clocks, are commonly made from porpoise jaw and blackfish head oils, the process of refining these oils requiring about two years.[51]

The spermaceti representing the "foot" of sperm oil is carefully separated and subjected to processes of refining by itself. In its final form it appears as a white, translucent crystalline mass[52]—which in the manufacture of sperm candles was usually mixed with beeswax to prevent granulation.

Whalebone is now the most important product of the whale fishery. It comes from the baleen or right whale, or from the rorqual, more commonly known as the "sulphur bottom." The bone occurs as a series of plates or blades, several hundred in number, and varying up to fifteen feet in length, which are suspended from the sides of the crown bone and hang down on each side of the tongue. The value of the bone lies in the fact that when softened with hot water, or by heating before a fire, it has the property of retaining any given shape, provided it is

[51] Ellis, p. 470.

[52] Simmonds, p. 389–390.

secured in the required form until cold.[53] The preparation of the bone consists of boiling it in hot water for several hours, which makes it soft when hot and harder when cold. The surface is then cleaned and polished, while the jet black color, usually seen, is the result of a dyeing process.[54]

Though now so precious, it was only a century ago that the bone was often dumped over the ship's side as so much waste or was saved by the sailors only for making curious knick-knacks during their leisure hours.[55] As late as 1830 bone had only just reached a price of over twenty cents per pound, but as its value was recognized and the demand increased the price rose steadily and has continued to do so up to the present time.

Whalebone appears to have found its first use in women's stays,[56] and later in parasols and umbrellas, in all of which uses it was subsequently largely replaced by steel. At various times it has been used by milliners, in upholstery, as the framework for trunks and traveling bags, in fishing rods, driving whips, shafts, springs and wheels of carriages, etc., while the coarse hair on the bone has often been used as a substitute for curled hair in upholstering furniture. Various substitutes, either natural or artificial, have largely supplanted the other whale products, and in some degree bone has been replaced by steel, celluloid, rattan, etc., but no material has been found which will answer all its purposes. It is fortunate that this is so, for without the demand for whalebone the whale fishery would almost certainly disappear. The consumption of whalebone at present, both in this country and in Europe, is confined largely to the original use—in corsets and in stays for dresses.

Ambergris, the only other product of the whale fishery,

[53] Scoresby, p. 435.
[54] Simmonds, p. 380.
[55] Pease, p. 32.
[56] Scoresby, p. 436.

is a secretion from the intestines of the sperm whale, and is generally regarded as the result of disease. It is occasionally found floating at sea or is picked up along the shore, but more often it is extracted from the whale itself. Ambergris is comparatively rare, being worth more than its weight in gold. Its chief use is in the preparation of fine perfumeries, because of its property of thoroughly and permanently uniting the different ingredients.

From the very nature of its occurrence there is no regular supply of ambergris and the quantity imported is usually very limited. In this connection, however, it is interesting to note an item by Simmonds[57] who says "Strangely enough this substance is brought to Mogador (in northern Morocco) in considerable quantities by the Timbuctoo caravans from the interior of Africa, it probably finding its way there from the west coast. At Mogador it sells[58] for about £20 per pound. Most of the well-to-do Moors have ambergris in their houses and they use it in green tea as a flavoring, one of the greatest compliments to a guest is to present him with a cup of this strange mixture." It would be interesting to know the source of this supply of the precious ambergris, but neither Simmonds nor any other writers make any further mention of it.

[57] Simmonds, p. 300.

[58] Written in 1877.

CHAPTER VIII.

Whale Products in Commerce.

It is much more difficult to trace the development of trade in whale products than it is to trace any other phase in the history of whaling activities. The chief source of difficulty lies in the absence of early records of trade movements, both domestic and foreign. It seems undoubted that whale products became important articles of commerce almost as soon as whaling began. The amounts of oil taken by the Nantucket, the Long Island and the Cape Cod fishermen must very soon have been much larger than necessary to supply all local demands. At least as early as the introduction of boat whaling there must have been permanent markets important enough to make whaling profitable when pursued as a regular business. And as early as 1668 a company was formed at Easthampton for the purpose of carrying on whaling from boats.[1]

It seems quite reasonable to suppose that the trade in whale oils was, almost from the start, carried on with both domestic and foreign markets; not that the export trade grew out of a greater supply than could be disposed of in the colonies. Export trade to British ports was favored by various conditions. The New England colonists were familiar with the English demand for whale oils, through the attempts at establishing the Spitzbergen fishery. The colonists were in constant need of British commodities and the exchange for colonial products directly was a natural outcome of this demand. Great Britain exerted every influence, at times little less than actual compulsion,

[1] Starbuck, p. 12.

in the encouragement of trade between the American colonies and the mother country. And the colonies themselves in many instances placed obstacles in the way of inter-colonial trade, while trade with England was directly favored.

When the trade first began, what were the markets and how important were the movements of whale products is impossible to say. Starbuck says[2] that the oil from Long Island was sent to Boston and to Connecticut ports at an early date, and that this trade was for many years an almost constant source of trouble between the settlers at the eastern end of Long Island and the colonial authorities of New York. Among the first of the many arbitrary laws passed by the New York governors and councils was an act requiring all oil for export to be cleared from the port of New York. And an act dated 1684 imposed a duty of ten per cent on all whale products exported from New York ports to any outside ports, except directly to England or to the West Indies.[3] It is obvious enough that this act was directed against the trade with Boston and Connecticut ports, but history says that it was not successful in accomplishing the desired end. It is valuable, however, as indicating that by 1680 at least, both home and foreign trade in whale products had become important enough to be regarded as an element of commerce and worthy of legislative control.

Little has been preserved in the records to reveal the conditions of the trade during the latter part of the seventeenth century and the opening decades of the eighteenth century. But from the meager references available it appears to have undergone hardly any changes, except that of increasing importance and value. Whale oil was the chief product of the fishery in these early days. Sperm whaling was not begun until about

[2] Starbuck, p. 14.
[3] Starbuck, p. 15.

1712,[4] and whalebone was not then regarded as of much value. Long Island, Nantucket and Cape Cod were the main whaling localities, and it seems probable that Boston remained the chief port for many years, with the exports going to British ports in Great Britain and in the West Indies.

In 1678 a Boston merchant had sought permission to clear with a cargo of oil he had purchased at Southampton, directly from that port to London, in order to avoid the risk of extra leakage during the voyage to New York.[5] But it seems probable that this practice was not continued, for during the early years of the eighteenth century there was the same old trouble because of the trade going to colonial ports outside of New York rather than to that port. In 1720 the Nantucket whalers made a small shipment of oil to London, but whether this was their first venture in direct export trade is as uncertain as is our knowledge concerning the success of the enterprise. At all events it was not until many years later that the practice was resumed.

The trade in whale products, especially the export trade, apparently grew rapidly after the development of deep sea whaling, for of the industry in 1730 Holmes says,[6] the "whale fishery of the North American coasts must at this time have been very considerable, for there arrived in England . . . about the month of July, 154 tons of train and whale oil and 9,200 of whalebone." These quantities must either include the product imported into England from the British fishery in Davis Strait, which had begun some years before, or else the "9,200 of bone" means pounds and not tons. For it is incredible that the limited colonial industry should export an amount of bone equal to the annual exports during the years when whaling was in the full tide

[4] Macy, p. 42.
[5] Starbuck, p. 14.
[6] Holmes: American Annals, I, 126

of its success and bone was an increasingly valuable product.

As the whaling industry, grew the increased quantities of oil and bone far exceeded the limited colonial demand. Boston had for many years served as the chief colonial market, especially for the important Nantucket interests. The whalers sold their oil there and secured their supplies from that port. But the markets were occasionally glutted as the business was overdone and the prices were too low to make the fishery profitable.[7] Export trade in whale products as in other commodities was practically limited to British and British West Indian ports.

"It was found," says Macy,[8] "that Nantucket had in many places become famed for whaling, and particularly so in England, where partial supplies of the oil had been received through the medium of the Boston trade. The people finding that merchants in Boston were making a good profit by purchasing oil in Nantucket . . . ordering it to Boston and thence shipping it to London, determined to secure the advantage of the trade to themselves, by exporting their oil in their own vessels. . . . They, therefore, loaded and sent out one vessel about 1745. The result of this small beginning proved profitable and encouraged them to increase their shipment by sending out other vessels. They found, in addition to the profits on the sales, that the articles in return were such as their business required, viz., iron, hardware, hemp, saileloth and many other goods, and at a much cheaper rate than they had hitherto been subjected to." Nantucket was at that time the chief center of the whale fishery and this new phase of trade activity gave new life to the business and promoted new ventures. At all times, in fact, the market conditions have been of vital importance to the success and prosperity of whaling enterprises.

[7] Starbuck, p. 23.

[8] Macy, p. 51.

The people soon learned from experience how to take advantage of the different markets for oil. The sperm oil was sent mainly to England in the crude state, that is the "head matter" and the body oil were generally mixed, for at that time there was not enough difference in price to pay for separating the two grades. The whale oil, coming chiefly from right whales, was shipped to Boston, or elsewhere in the colonies, and from these central markets it was distributed throughout the colonies or sent to the West Indies in the trade for molasses.[9]

In 1761 the Gulf of St. Lawrence and the Straits of Belle Isle fisheries were opened to the colonial whalemen,[10] and there were immediate prospects of increased profits. But the colonists were destined to be disappointed. In 1755 England placed restrictive measures on American whaling operations in the form of an embargo, pending the expedition against the French in Arcadia. And the same year that the new fisheries were opened still more repressive measures were passed. Apparently as a part of the plan to encourage and develop the British whale fishery, still struggling in rivalry against the Dutch, Parliament laid a duty on all whale products exported to England from the colonies. The residents of Great Britain on the other hand were granted a bounty in which the colonists could not share. These conditions in themselves were not so hard, but by another act of the same year the colonists were not allowed to send their exports to any other markets. Hence in order to secure any export trade at all, the colonists were literally forced into paying the English duties. The New England merchants, as well as the London merchants, engaged in colonial trade protested against these injustices, sending petitions to Parliament asking for the removal of the duty. But it was not until about 1767 that the conditions were very much improved.

[9] Starbuck, p. 52–53.
[10] Starbuck, p. 39.

During the years immediately preceding the Revolution the whale fishery was prosperous and profitable in every phase of its activity. The annual production from 1771–1775 was probably not less than 45,000 barrels of sperm oil, 8,500 barrels of whale oil and 75,000 pounds of bone.[11] The average price in the market during this time was about £40 sterling per ton for sperm oil and £50 per ton for head matter. Whale oil brought about $70 per ton and bone, exported chiefly to Great Britain, sold for about fifty cents per pound.[12] Much of the exports went to England to find their way into British and other European markets where the increasing consumption of oil in lamps as well as in different manufactures created a large demand for whale products.[13] The English demand especially was larger than the supply of the home fishery, and the English government was paying heavy bounties to build up the business.[14]

The outbreak of hostilities in 1775, however, put a stop to whaling operations and consequently trade in oil and bone practically ceased, except with the West Indies.[15] West Indian products of all kinds commanded excessively high prices. The whaling vessels of that time, schooners and small square rigged vessels, were well suited for the trade, and in addition, many of the owners had stocks of oil and candles which were in demand in the islands. The business, however, was dangerous, and to divide the risk it was usually carried on jointly by several persons. But later in the war the presence of British cruisers and privateers along the coast greatly restricted even this small remnant of the former prosperous trade.

After the war was over the fishery was greatly stimulated in its revival by the excessive prices commanded

[11] Starbuck, p. 57.
[12] Macy, p. 81.
[13] Hutchison, III, p. 400.
[14] Scoresby, p. 75.
[15] Macy, p. 91.

by oil and bone. But these prices soon fell.[16] England tried to take over the whale fishery, paying heavy bounties to build up an industry which could supply the demands of the markets. At the same time the American trade was practically excluded by an alien duty of £18 per ton. This duty had a far-reaching effect on the American industry. Oil which was worth £30 per ton before the war now brought only £17, while £25 per ton was the lowest price which would leave the merchants any margin of profit. The English demand had been practically the only important foreign market, and with the loss of it, the situation was becoming desperate. The rise and fall of prices may be seen from the accompanying table:[17]

Year.	Sperm Oil per ton.	Year.	Sperm Oil per ton.
1730	£7	1770	£40
1748	£14	1772–1775	£45
1758	£18	1783	£40
1768	£18	1784	£24

In 1785 Massachusetts provided for a bounty on whale products to help along the industry, but its finals effects were not wholly good The fishery was unnaturally stimulated and the imports of oil and bone soon exceeded the demand. The long suspension in the use of oil during the years of the war had resulted in a more general return to the use of tallow candles. Over production, therefore, prevented the hoped for increase in prices and profits. It was at this time that the Nantucket whalers carried on negotiations with England and with France in regard to a transference of their interests to those countries where more favorable conditions were presented.[18] A commercial treaty with France in 1789,[19] however, gave promise of more prosperous conditions, by opening

[16] Starbuck, p. 78.
[17] Macy, pp. 226–227.
[18] Macy, pp. 134–135.
[19] Starbuck, p. 90.

the French markets to American whale products, while at the same time European whale products were excluded. The first few shipments to France met with a profitable sale and the prospects seemed good. But the troubles between France and England, and the outbreak of the French Revolution, soon annulled all the expected advantages of the agreement of 1789.

From that time until the close of the war of 1812 every phase of the whale fishery was marked by ups and downs, such as are found at no other time. In 1798 the prospects of hostilities between the United States and France were reflected in the preying of French privateers on American commerce. Whaling interests suffered with the rest. The price of provisions was high; rates of insurance increased; at one time rates as high as twenty per cent were charged for marine insurance when the underwriters would assume risks at all;[20] and there were many times when the ship owners must have lost money, under the current prices, even if their ships had brought in full cargoes.[21] During the early years of the new century there was added both the trouble with the Spanish in South America, just when the newly opened Pacific fishery was becoming important, and the difficulties with Bread Britain in harassing our commerce. The embargo of 1807 kept down the prices of oil and candles by stopping their exportation. And finally the outbreak of actual hostilities in 1812, with the accompanying restrictions on trade in general, once more put an effective end to any extensive trade movements in whale products.

Yet during these same years there were other influences which were tending steadily to build up trade in whale oils and bone. The years of depression led many owners to sell their vessels or to transfer them to other branches of business. The quantities of oil imported were thereby reduced even below the market demand and the prices

[20] Macy, p. 163.
[21] Macy, p. 150.

again rose to the point of returning reasonable profits. With renewed prosperity in the country the home consumption of oil and sperm candles was increasing. During the Revolution necessity had prompted a return to tallow candles, but experience had shown clearly enough that the whale and sperm oil were preferable as illuminants,—giving both a cheaper and a better light. Light-houses were also increasing in number, creating a greater demand for oil and tending to raise its price. Whale oil was being secured in greater quantities and the fact that it commanded only about one-half the price of sperm oil, favored its more general use. Whale oil, it is true, did not give such a brilliant light as sperm oil, but since it was cheaper and would last about twice as long, it had an increasing demand for common lights. Both sperm candles and whale oil found growing markets in most of the important seaports on the coast, and from them it was shipped to various parts of the world, the West Indian trade being especially important.[22]

While the war lasted (1812–1815) the imports of oil and bone fell to the merest fraction of what they had been during the years just previous to the outbreak of hostilities. The decreased supply was far below the demand of the home markets, and this fact, coupled with the prohibitive embargoes, resulted in the complete suspension of the export trade. In the years 1813 to 1815 inclusive there were no shipments of sperm oil or bone to foreign markets, while of whale oil the exports were practically nil in 1814 and none at all in 1815. During the fifteen years since the opening of the century the annual exports had gone as high as 136,000 gallons of sperm oil, 932,000 gallons of whale oil, and 134,000 pounds of bone. The current prices were ranging near one dollar a gallon for sperm and fifty cents per gallon for whale oil, while bone was not worth over ten cents per pound. But at a time when the total export trade of the United

[22] Macy, p. 139.

States was relatively small, the trade in whale products was proportionately more important than during the later days of greater whaling prosperity.

Whaling was resumed after the war with marked activity especially at Nantucket. After the Revolution oil and bone had commanded excessive prices for a brief time, and now the belief that the first cargoes would bring similarly high prices acted as a great stimulus to renew the fishery. But the prices fell as low or even lower than for several years previous and many of the owners found themselves in financial difficulties as a result of doing business on credit and meeting with unsuccessful voyages. For two or three years the depression in whaling interests was a rather serious question to those whose capital was invested. The unsettled period lasted until about 1818 or 1820 when the fishery was once more on a profitable basis as the result of successful voyages. The steadily increasing quantities of imports from 1818 onward are the best indications of this growing prosperity. At the same time the export trade to different parts of the world began to assume its former proportions.

The exports of whale oil had surpassed any former record by the end of the year 1820, over one and a quarter million gallons being shipped that year. The sperm oil shipments were fluctuating up to about 1825, but after that year annual exports began to attain greater prominence. The foreign trade in whalebone was also relatively small during the years just after the close of the war but this fact is partially explained by the small total imports during that time.

From 1825 until the decline of whaling interests began, about 1860, the trade in whale products grew with the growing industry. But the increase in the importance of the export trade was not keeping pace with the growth of the industry as a whole. In other words the fishery was finding the basis for its greater prosperity not so much

in a rapidly-growing foreign market as in the increased consumption at home. In a way this circumstance was a direct reversal of the conditions at the close of the Revolution. At that time loss of the foreign, especially the important British, markets was the prime cause of the fluctuations in whaling prosperity. The home demands at that time were not great enough to support a flourishing industry and the merchants had been compelled to look to foreign markets for a good share of their profits. But after 1820 by far the larger part of the whale oils went into the markets of this country. Whalebone, on the contrary, has almost always seemed to find its greatest demands in European markets.

The growth of imports from year to year may be seen from a study of Table III in Appendix I. From 1825 to 1835 the imports of sperm oil had risen from about 2,000,000 gallons to over 5,000,000 gallons. The quantity of whale oil had increased, by 1837, from a little over 1,600,000 to over 6,300,000 gallons in a single year. And the yield of whalebone had risen from less than 200,000 pounds, previous to 1829, to over 2,000,000 pounds by 1840.

During the same years the exports of sperm oil had not risen above 300,000 gallons and except in two years they had not exceeded 100,000 gallons annually. Of the whale oil and whale bone, however, between a third and a half of the total imports were finding their way into the foreign trade of the country. In another connection attention has been called to the fluctuations from year to year characteristic of the whale fishery. The same feature is found in a study of the annual exports. A comparison of the number of vessels and tonnage of the fleet with the amount of annual imports shows no definite inter-relationship. Nor is there any apparent connection between the quantities of oil and bone imported and the amounts sent to foreign markets. For example to look at the years when imports and

exports have reached their maximum amounts brings out this point:

MAXIMUM ANNUAL IMPORTS AND EXPORTS OF WHALE PRODUCTS.

	Imports.		Exports.
Sperm oil.....1837,	5,329,138 gals.	1860–61,	1,518,457 gals.
Whale oil.....1851,	10,182,000 gals.	1837–38,	4,824,376 gals.
Bone.....1853,	5,652,300 lbs.	1852–53,	2,852,069 lbs.

In short the foreign demand for American whale products seems to have been influenced more by the failure of the European fisheries than by the success of the American industry.

During the days of whaling prosperity both oil and bone were important articles of foreign trade. Whale oil was shipped abroad in somewhat larger quantities than was sperm oil but the usual higher prices of the latter made it of equal or even greater value. When the decline of whaling interests began about 1860, the commercial importance of whale products also began to fall, for it was almost entirely a lessened demand and decreasing consumption which induced the decline. Whale oil was the first product to be seriously affected because its uses as a cheap illuminant were most largely supplanted by the new petroleum products.

Since 1864 the exports of whale oil have steadily declined, in only five years exceeding 10,000 barrels. And since 1899 the total exports have been only 900 barrels—500 barrels in 1900 and 400 barrels in 1902. At the same time the imports have declined steadily from 76,000 barrels in 1865 to 1,755 barrels in 1905. Thus both the home and the foreign markets have practically ceased to be important. With sperm oil the condition is slightly different. Its use in fine lubricants has preserved a part of the former demand, along with the minor consumption in certain industrial arts. But the consumption is largely in the American markets. Since 1865 the imports of sperm oil have declined on the whole,

though with many fluctuations, from about 65,000 barrels to 12,985 barrels in 1905. The exports which in 1865 amounted to 20,000 barrels, have not exceeded 2,000 barrels in any year since 1892, and since 1900 only one year, 1902 with 470 barrels, has been marked by any foreign shipment of sperm oil. Whale oil therefore has largely lost both home and foreign markets, while sperm oil has ceased to rank as an article of export. The small annual yield of the latter is almost entirely consumed in the United States.

Whalebone presents a marked contrast to the declining trade in oils. True it is that the annual yield of bone at present is far below the figures for the years during the middle of the last century. But with the failing of the whale fishery, bone has become the chief product. Year by year its price has risen as the supply has fallen off, and the demand has continued. The foreign market still continues to be the most important, rather more than half the bone being sent to European ports, chiefly France, Germany and Great Britain. Whalebone alone remains as an important article of commerce—on the demand for bone depends almost entirely the future of trade in whale products. A recent report from the London "Times" (Nov. 1, 1906) states that the price of whalebone in the London market has gone up to seven dollars per pound as the result of the failure of the British fishery. The Dundee whalers could not reach the whaling grounds, in the Davis Strait and Greenland regions, because of the presence of pack ice. This high price will undoubtedly stimulate the foreign shipments of bone from this country.

Whaling was beneficial in its prosperity not alone to the people who invested directly in the fishing enterprises. The refining and manufacturing of oils offered profitable employment for capital and gave work to many hundreds of workmen during the days of its greatest development.

The manufacture of sperm candles was one of the

most important industries growing out of the whale fishery. And as early as 1760 there were eight factories in New England and one in Philadelphia.[23] Other allied industries were greatly promoted, as cooperage, machine-shop products, cordage, and more especially boat and ship building. Thus in 1851 the New Bedford fleet alone added forty-eight ships, and in 1852 six new ships were being built in the New Bedford yards.[24] The development of such interests gave rise to new trade relations and movements. The growth of these allied industries reflected the growing importance of trade in whale products, and their success depended on the commercial prosperity of the fishery. The changing economic conditions, by which this commerce was largely destroyed, might have effected these industries adversely in the important whaling centers, and have brought a general economic crisis in such a place as New Bedford,—but the change was gradual; the markets declined slowly; and most of the industries were able to transfer their interests to other growing lines of activity. Ship and boat building alone suffered heavily but perhaps not so much from the failure of whaling commerce as from the general decline of the American merchant marine and American supremacy in ship building.

[23] Weeden, I, 655.

[24] Ellis, p. 419.

CHAPTER IX.

Present Status and Future Prospects.

On January 1, 1906, the whaling fleet of the United States numbered forty-two vessels, with an aggregate tonnage of 9,878 tons. By way of comparison, the Nantucket fleet from 1771–1775 numbered 150 vessels, having a tonnage of 15,075 tons. The number of vessels at the beginning of the year was the same for the two years previous, but the tonnage figures represent the highest mark reached since January 1, 1900, when the figures for the fleet were forty-eight vessels, and aggregate tonnage 10,478. The increase in tonnage from 1905 to 1906 was owing to the addition of new vessels, a 294-ton bark from Norwich, a 390-ton brig from New Bedford and a 180-ton schooner from San Francisco. While the three vessels lost or withdrawn aggregated only 270 tons.

The most notable feature of the year was the reappearance of Norwich, Conn., as a whaling port after a lapse of seventy years. Since Boston dropped from the list in 1903 vessels had been registered only from the three ports, New Bedford, San Francisco and Provincetown. During the last thirty-five years the only other instances of a new port being added to the list were Stonington, Conn., which sent one or two vessels yearly from 1878 to 1893, and Hartford, Conn., which sent one vessel in 1887. The Stonington case represented a lapse of seventeen years, while Hartford had never before been a whaling port. The Norwich instance is, therefore, noteworthy, but it means practically nothing as to the status of the whole industry.

The main fleet, as in previous years, was divided among New Bedford with twenty-four vessels; San Francisco,

fourteen vessels, and Provincetown, three vessels. Of the whole fleet, there were twenty-five steamers and barks, three brigs and fourteen schooners. With the exception of five schooners hailing from San Francisco, practically all the brigs and schooners, that is the smaller vessels, are employed in the sperm whale fishery of the Atlantic Ocean. The steamers and barks, on the other hand, are engaged chiefly in the North Pacific and the Arctic fishery.

The imports of whale products in 1905 show a falling off from previous years. The imports of sperm oil, 12,985 barrels, reached the lowest figure since 1899; whale oil, 1,755 barrels, touched the lowest figure since 1815, with the single exception of 1903, and whalebone, 79,900 pounds, again excepting 1903, went lower than in any other year since 1827. In other words, the vessel and tonnage figures would suggest a slight revival of whaling during the last few years, the figures of imports last year indicate about the lowest condition of the fishery for nearly a century.

The prices on whale products also fell, six cents per gallon on sperm oil, five cents on whale oil, and ninety cents a pound on whalebone. Hence the smaller imports had a still smaller relative value as compared with the two or three years immediately previous. It seems, therefore, that in spite of a slight increase in the fleet tonnage, the whaling industry has not yet reached its lowest ebb, at least as far as oils are concerned. The merchants, however, apparently have faith in an advance of price, for many of them are holding much of their stocks rather than sell at the prevailing low prices.

The imports of oil and bone are made chiefly at New Bedford and at San Francisco. The Atlantic fleet of sperm whalers makes New Bedford its port, though small amounts of both sperm and whale oil are occasionally entered at New York and Boston. The San Francisco imports are chiefly of whalebone from the right whale

fishery of the North Pacific and Arctic fleets. Some bone is also usually entered at Seattle, whence it is shipped east by rail. There were no exports of either sperm oil or whale oil in 1905—making the third year of no foreign movement of these products. It seems safe to conclude that the formerly important European market no longer exists, and the consumption of whale oils is by home demands—their uses being mainly as lubricating oils. Whalebone, on the contrary, still continues to have a good foreign demand as in previous years, the exports in 1905 exceeding 80,000 pounds.

Such, in brief, was the condition of the whale fishery at the end of the year 1905. During the past summer (1906) no less than eight whaling vessels, schooners and brigs, were in the harbor at New Bedford at one time. Such a thing had not happened before for years—the daily papers noted it at length and people began to talk about a "revival of whaling." But a careful analysis of present conditions shows no ground for such a belief.

What the future of whaling is to be, is, of course, much in the nature of mere prophecy—yet the signs seem easy to interpret. It appears reasonable enough to say that the fishery for right whales will be carried on in the northern seas as long as the demand for whalebone continues and as long as the price remains at its present high figure. That is, the most important phase of the industry will be carried on from the Pacific coast, and San Francisco will doubtless continue to be the headquarters of the fleet.

The prospect for the Atlantic sperm whale fishery is not so promising. The low price of oil is rather discouraging to the merchants, and only the good luck of the vessels in securing large catches in a short time has made it possible to continue the business with any profit. The modest manner in which this fishery is carried on by the New Bedford and Provincetown merchants, with small vessels making relatively short voyages, will probably enable

them to continue the business to a limited extent as long as the fondness for sperm lubricating oils continues to be a Yankee trait.

Beyond these possibilities the future seems to hold nothing. Whaling no longer ranks as an important commercial interest even in the localities from which it is carried on. The most optimistic view of the future reveals no prospect of any chance for permanent growth or development. The economic conditions under which whaling prospered have ceased to exist, never to be revived. The chief influences which induced the decline of whaling have not been abated in the slightest degree. The death knell of whaling was sounded fifty years ago. It may almost be said that whaling is already dead.

APPENDIX I.

Statistics of Whaling.

Table I, compiled from Goode's work and from the "Whalemen's Shipping List," shows the tonnage of vessels employed in the whale fishery from 1794 to 1842, and both the number of the vessels and their tonnage from 1843 to date. These figures are interesting in a number of ways. First of all they show the limited extent and unsettled conditions of the fishery until after the close of the war of 1812. Second, they give a good idea of the rapid growth up to 1847, and finally they serve well to illustrate the less rapid, yet steady, decline from about 1850 onward.

Studied in connection with Table I, Table II gives a still more detailed conception of the various phases of the history of whaling. Table II gives the records of clearance of whaling vessels from the different ports from 1784 to 1840, compiled from Starbuck's tables; and the vessels owned at the different ports from 1840 to 1905, compiled from the "Shipping List." The different points worthy of attention are (1) The relatively large number of ports from which whaling vessels were sent immediately after the Revolution, but from most of which whaling was carried on only intermittently or was suspended entirely until after the War of 1812. (2) The uninterrupted prosecution of the fishery year after year from New Bedford and Nantucket, except during the second war with England, and (3) The increasing rivalry for supremacy between these two ports, soon decided in favor of New Bedford. (4) The reawakening of the business at many ports from 1818 to 1820 and the years following. (5) The increasing size of the individual fleets

and the regularity with which the business was carried on from a large number of ports during the later years of the Golden Era. (6) The abandonment of the fishery at port after port in the period from 1857 to 1870. (7) And finally the gradually increasing size of the San Francisco fleet while all the other fleets were still declining, until only the three ports, New Bedford, San Francisco and Provincetown remain.

The table of imports, Table III, is chiefly valuable as indicative of the commercial importance of the fishery. In a way, also, the increasing quantities brought in from year to year are illustrative of the growth of the fishery up to about 1850 to 1860, when the decline began, After that date the decreasing imports speak eloquently of the lessened consumption and demand, and the forces working against whaling prosperity. A comparison of imports and the size of the fleet, as given in Table I, in a number of different years, will bring out vividly the uncertainty that always attended whaling operations. In a year when the fleet was large the imports might be small, while perhaps the very next year a distinctly smaller fleet would bring in cargoes making up a far greater total for the year.

A comparison of the figures for one or two instances will illustrate the point:

SIZE OF WHALING FLEET AND QUANTITIES OF IMPORTS.

Year.	Number of Vessels.	Gallons of Sperm Oil.	Gallons of Whale Oil.	Pounds of Bone.
1851	553	90,591	328,483	3,906,500
1852	620	78,872	84,211	1,259,900
1853	661	103,077	260,114	5,652,300
1854	668	76,696	319,837	3,445,200

The contrast between 1851 and 1854 is most marked. In the three years the number of vessels increased by 115—principally from New Bedford—but in the latter year the imports were distinctly smaller. One hundred

of the 115 vessels added were ships and brigs, representing an increase of at least $2,000,000 in the invested capital. The lapse of four years precludes the argument that the new vessels had not had time to secure a cargo and return home—a point that becomes still more manifest if the imports for 1855 and 1856 are considered.

The table of imports and the table of exports—Table IV—are properly studied together, since from the two can be had the best idea of the commercial importance of whale products. The table of exports also shows the close dependence of foreign trade on general economic conditions—nowhere more marked than in the falling off in the foreign trade as soon as the decline of whaling began. The decline of the export trade, especially in whale oil, seems to have been more rapid than the decline of the general industry. This table, taken with the table of prices, Table V, shows a remarkable example of increasing commercial importance of a single commodity with an almost steadily rising price. Whalebone is the product referred to—having continued its upward tendency in spite of all the adverse conditions so disastrous to the other products of the fishery.

The annual prices again serve as good illustrations of the fluctuations in the whaling business—ups and downs being the rule, and stable conditions for more than a year or two being the exception.

Tables VI and VII, figures of the North Pacific and San Francisco fleets, and the comparative imports at New Bedford and San Francisco are illustrative of the rise of the Pacific industry with the transference of a large part of the whaling interests to the port of San Francisco. This point is perhaps brought out best by the figures of the annual imports, at the two places. Two facts are noticeable: (1) The sperm oil is imported largely through New Bedford—being the product of the Atlantic fishery schooners from Provincetown and New Bedford and (2) the bone, at present the really valuable product

of the fishery, is almost wholly imported through San Francisco, being the product of the Arctic fishery. In other words it is plain from this comparative study that San Francisco now has the most valuable interests, while New Bedford retains but an unimportant remnant of her once greatest industry.

TABLE I.

NUMBER AND TONNAGE OF VESSELS IN WHALING FLEET, 1794–1906.*

Year.	Number of Vessels.			Tonnage.	Year.	Number of Vessels.			Tonnage.
	Ships and Barks.	Brigs.	Schooners.			Ships and Barks.	Brigs.	Schooners.	
1794	.....	.....	.....	4,129	1851	502	24	27	171,971
1795	.....	.....	.....	3,103	1852	558	27	35	193,190
1796	.....	.....	.....	2,364	1853	599	30	32	206,286
1797	.....	.....	.....	1,104	1854	602	28	38	208,399
1798	.....	.....	.....	763	1855	584	20	34	199,842
1799	.....	.....	.....	5,647	1856	585	21	29	199,141
1800	.....	.....	.....	3,466	1857	593	22	40	204,209
1801	.....	.....	.....	3,085	1858	587	18	49	203,148
1802	.....	.....	.....	3,201	1859	561	19	45	195,115
1803	.....	.....	.....	12,390	1860	508	19	42	176,848
1804	.....	.....	.....	12,339	1861	459	14	41	158,745
1805	.....	.....	.....	6,015	1862	372	10	41	125,462
1806	.....	.....	.....	10,507	1863	301	10	42	103,146
1807	.....	.....	.....	9,051	1864	258	5	41	88,785
1808	.....	.....	.....	4,526	1865	226	7	43	79,696
1809	.....	.....	.....	3,777	1866	199	8	56	68,535
1810	.....	.....	.....	3,589	1867	222	10	80	75,340
1811	.....	.....	.....	5,299	1868	223	17	89	74,596
1812	.....	.....	.....	2,930	1869	223	25	88	74,512
1813	.....	.....	.....	2,942	1870	218	22	81	73,137
1814	.....	.....	.....	562	1871	216	18	54	69,372
1815	.....	.....	.....	1,230	1872	172	12	34	52,701
1816	.....	.....	.....	1,168	1873	153	12	38	47,996
1817	.....	.....	.....	5,224	1874	130	7	34	41,191
1818	.....	.....	.....	16,750	1875	119	8	36	37,733
1819	.....	.....	.....	32,386	1876	123	7	39	38,883
1820	.....	.....	.....	36,445	1877	121	8	43	37,828
1821	.....	.....	.....	27,995	1878	129	11	47	41,197
1822	.....	.....	.....	48,583	1879	124	12	50	40,602
1823	.....	.....	.....	40,503	1880	119	11	48	39,433
1824	.....	.....	.....	33,346	1881	116	11	50	39,426
1825	.....	.....	.....	35,379	1882	105	10	46	35,892
1826	.....	.....	.....	41,984	1883	101	8	38	34,137
1827	.....	.....	.....	45,992	1884	98	7	39	33,119
1828	.....	.....	.....	54,801	1885	93	6	34	31,207
1829	.....	.....	.....	57,284	1886	87	5	32	29,118
1830	.....	.....	.....	39,705	1887	84	6	31	28,291
1831	.....	.....	.....	82,797	1888	83	6	27	27,851
1832	.....	.....	.....	73,246	1889	74	6	26	25,488
1833	.....	.....	.....	101,636	1890	65	6	26	22,718
1834	.....	.....	.....	108,424	1891	64	7	26	22,464
1835	.....	.....	.....	97,649	1892	59	7	26	20,845
1836	.....	.....	.....	146,254	1893	59	7	29	21,165
1837	.....	.....	.....	129,157	1894	56	7	27	20,107
1838	.....	.....	.....	124,860	1895	51	7	27	18,152
1839	.....	.....	.....	132,285	1896	47	5	25	16,358
1840	.....	.....	.....	136,927	1897	42	3	22	14,684
1841	.....	.....	.....	157,405	1898	38	3	22	13,373
1842	.....	.....	.....	152,990	1899	34	3	19	11,436
1843	594	75	6	199,192	1900	30	2	16	10,478
1844	595	41	9	200,147	1901	27	.....	13	8,746
1845	643	35	17	218,655	1902	24	1	14	8,366
1846	680	34	22	233,262	1903	24	1	14	8,470
1847	670	37	20	230,218	1904	26	1	15	9,561
1848	621	22	16	210,663	1905	25	1	16	9,378
1849	581	21	12	196,110	1906	25	3	14	9,878
1850	510	20	13	171,484					

*Compiled from the following sources: 1794–1843, Goode: Fisheries and Fishing Industries of the United States, Sec. 5, Vol. 2, p. 173. 1843–1906, "Whalemen's Shipping List."

TABLE II.[1]

FLEETS OF THE DIFFERENT WHALING PORTS,[2] 1794–1906.

Vessels Sailing, 1784–1839 (Clearances). Vessels Registered at Port, 1840–1906.

	1784	1785	1786	1787	1788	1789	1790	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	1821	1822	1823
Braintree	...	...	1	...	...	...	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	1	1	2	3	7	1
Boston	7	9	6	1	...	1	...	5	1	...	5	...	2	2	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Bristol, R. I.	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Dartmouth	...	1	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	2	4	1	2
Edgartown	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	2	2	3	2	6	4	3
Fairhaven	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gloucester	...	...	...	...	1	2	...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Greenwich, Conn.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Hudson, N. Y.	...	...	...	...	1	...	...	...	...	...	...	1	1	2	...	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...
Hingham	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
East Haddam, Conn.	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mattapoisett	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	6	5	2	1
New York, N. Y.	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nantucket	...	...	...	...	7	20	...	8	15	24	10	7	12	15	4	8	17	10	22	19	26	13	13	14	19	29	17	31	10	2	...	50	38	33	43	32	45	34	40	19
New Bedford	...	...	...	...	...	1	...	1	8	10	9	10	...	16	4	3	7	11	13	17	19	3	8	5	14	7	7	4	...	...	...	10	13	13	25	20	36	39	33	26
New Haven, Conn.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...
New London, Conn.	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	3	2	3	...	...	...	...	...	...	...	...	...	...	...	1	3	8	6	4
Newport, R. I.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	3	2	1
Newburyport	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Norwich, Conn.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...
Plymouth	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Providence, R. I.	1	...	...	...	...	...	...	...	...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	11	9	3
Provincetown	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	1	1	...	2	4	6	...	1	...	...	...	3	...	6	4	7	8	7	8	10
Sag Harbor, N. Y.	2	2	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Tiverton, R. I.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Wareham	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	1	1	5	5	5	2
Westport	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wellfleet	2	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...
Rochester	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rhode Island	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cape Cod	...	...	...	...	...	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Holmes Hole	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...
Salem	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	1	1	1	...
Falmouth	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	1	...
Marblehead	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Philadelphia, Pa.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...
Stonington, Conn.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Warren, R. I.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...

*No report accessible for 1790.

There is no report of vessels sailing from New Bedford or Nantucket in 1784, 1785, 1786 or 1787.

TABLE II (Continued).

	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Barnstable																								1	1																
Bath, Me.																				1																				
Beverley																												1	2	3	3	5	5	4	2	2	3	3	2	1	2
Boston		1	2	2				1	1	1				1			1	2	2	5	3	1	3	1	1			1	3	3	1									5
Bridgeport, Conn.										1	1	2	1	3	2	3	3	3	3	3	3	3		3	2	2														
Bristol, R. I.				2	3	4	4	4	9	5	5	4	7	7	4	3	6	5	5	10	7	6	6	6	1	1														
Bucksport, Me.																				1																				
Cold Spring, N. Y.														1		2		2	2	2	4	7	8	8	8	8	7	7	6	7	7	7	5	5	5	4	4	2	2	
Dartmouth		1	2		1	1		1		2	3	1	2	3	3		3	3	3	2	1	1	1	2	1	1	1	1	3	4	3	6	9	10	10	10	9	6	5	4
Dorchester										1	2		2	2	2		2	2	2																					
Duxbury																				1	1	1																		
Edgartown	2	3	2	2	3	3	2	4	1	2	2	3	3	1	3	4	8	8	9	13	10	11	10	9	8	8	6	6	9	9	10	12	13	17	19	18	18	16	12	8
Fairhaven	2	5	7	5	8	10	9	15	15	19	14	14	15	14	21	15	44	41	45	49	45	45	48	48	50	49	46	45	50	49	49	45	48	46	46	45	42	39	29	18
Falmouth		1		1	1		1	3	2	2	1	4	5	3	3	2	8	8	7	7	5	5	4	4		3	3	3	3	3	3	3	3	3	3	3	3	1	1	1
Fall River									2	1	1	2	3	4	3	5	7	7	6	7	7	7	7	7	6	5	2	2	2	2	4	4	4	3	2	2	2	2	1	
Freetown																				1	1	2		2	1															
Greenport, N. Y.									1	2	2	2	3	5	4	6	5	5	4	5	8	10	11	11	11	10	10	10	9	9	10	10	11	9	7	4	2			
Holmes Hole												1		2	3	4	4	4	3	3	3	4	4	3	3	3	3	4	4	4	4	5	4	2	2	2	1	1	1
Hudson, N. Y.							3	4	4	7	2	3	3	3	3	4	8	8	8	2	2	1																		
Jamesport, N. Y.																	1	1	1	1																			
Lynn							1	2	3	3	3	3	3	3	3		4	3	2	2	2	2	3	3	2	2	2	2	2	2	1	1	1	1						
Mattapoisett																	8	8	5	10	9	10	11	11	10	9	9	13	15	15	15	15	18	19	19	19	18	9	5
Mystic, Conn.									1		4	1	3	2	5	6	6	6	7	9	8	12	18	17	15	16	11	10	10	9	9	11	7	6	5	4	4	2		
Nantucket	19	27	20	21	31	25	21	22	40	27	25	20	30	21	21	21	81	78	83	88	66	77	74	75	71	69	62	55	56	56	47	43	42	41	38	34	21	18	13	13
New Bedford	32	33	27	41	49	35	66	71	66	74	42	72	66	68	70	74	177	174	179	211	219	239	256	254	248	250	238	249	282	311	318	314	311	329	324	316	301	291	260	220
Newburyport										2	2	1		2			3	3	2	2	1	1					1													
New Suffolk, N. Y.															1	1	1	1	1	1	1	2	2	2	1	1													
New London, Conn.	1	4	3	10	7	10	15	13	20	17	18	17	21	17	17	21	39	36	31	42	46	64	70	70	59	48	44	42	41	45	46	45	44	54	51	45	36	29	16	13
New Haven, Conn.																																				1	1	1	1	1
Newport, R. I.	2	1		2	1	1	2	1	1	4	2	1	5	3	5	4	11	10	10	12	12	11	11	9	6	6	4	4	5	5	5	5	5	4	3	3	2			
New York, N. Y.	2		2	2	3	2			2	6	4	6	3	3	2	1	3	3		2	3	2	1	1															
Newark, N. J.												1	1	1		1	1	1	1	2	1																			
Orleans																												1	2	3	5	5	4	4	4	4	3	3	3	
Plymouth	1	1		1		1	1		1	2	1	2	2	3	1	1	3	3	6	9	7	5	4	2	1	1														
Portland, Me.											1				1		1	1	1																					
Portsmouth, N. H.									2	2	2	1	1	1	1		1	1	1	1	1	1	1	1	1															
Poughkeepsie, N. Y.									1	2	1	2	2	1	2	3	6	6	6	4	1																			
Providence, R. I.							1	1		1	1		1	1	1	2	3	3	3	8	8	9	9	8	6	4	3	2	2	2	1	1	1	1						
Provincetown								1	1		1	2	3	2	1	1	1		15	16	17	19	23	18	15	10	10	27	30	27	27	18	20	22	28	26	26	26	28	30

TABLE II (Continued).

	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Quincy																				1																					
Rochester			1	2	2	2	3	4	5	4	3	3	8	7	9	12	15																							
Sag Harbor, N. Y.	6	5	7	12	10	9	10	17	14	17	18	18	22	24	22	21	31	31	30	44	49	60	63	62	50	41	23	15	18	19	20	19	16	18	20	20	19	17	11	9
Salem								1	5	8	1	7	9	12	4	5	14	14	12	12	6	5	2	2	2	1			1	1	1	1	1		1	1	1	1		1
Sandwich																													1	2	2	2	2	1	1	1	1	1	1	1
Sippican																		6	8	8	7	4	5	5	3	1	1			1	2	2	2	3	5	6	6	5	4	3
Somerset																1			1	2	2	2		1	1	1	1													
Stonington, Conn.					1	1	1	3	4	4	2	6	3	5	3	6	11	8	9	14	13	20	26	27	24	20	18	16	17	16	15	14	16	6	5	4	4	1		
Truro																												1	1	1	1									
Wareham									1				1		1	2	4	3	5	7	4	6	6	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1		
Warren, R. I.		1		2	2	2	5	4	9	7	6	10	9	7	7	21	19	18	21	19	20	25	23	21	20	15	15	17	16	17	16	14	15	15	13	10	4	2	2
Westport	1	2	3	3	5	4	3	4	3	3	2	3	5	6	5	7	9	9	10	15	11	11	11	13	14	15	15	16	19	22	22	21	21	19	20	20	20	17	15	15
Wilmington, Del.											1	1	2	2	1	3	5	5	5	3	3	1																		
Wiscasset, Me.											1				1		1	1	1																					
Yarmouth																										1	1													
East Haddam, Conn.													1	1	1																									
Edenton, N. C.								1																							1	1							
Gloucester										2	1																													
Marblehead										1																														
Newburgh N. Y.									1	3	2	1		1																										
Norwich, Conn.											1		1																											
Perth Amboy, N. J.	1																																							
Philadelphia, Pa.	1																																							
Portsmouth, R. I.				1																																			

Table II (Continued)*

	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906
Beverley	2	2	2	2	1	1	1	1	1	1	1																																
Boston	3	3	4	8	11	10	8	7	6	5	4	6	7	6	5	5	5	5	5	5	4	3	3	3	3	3	3	3	1	1	2	3	3	3	4	4	1	1	1	1			
Dartmouth	4	4	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1	1																							
Edgartown	7	6	6	6	7	7	7	6	4	3	2	1	2	3	3	3	4	6	8	5	7	7	4	5	4	4	3	3	3	3	3	3	3										
Fairhaven	9	7	8	9	13	12	11	8	6	5	2	3	2	2	1	1		6	8																								
Groton, Conn.				1	1	1	1																																				
Marion				4	4	7	6	5	2	3	3	2	2	2	2	2	2	2	2	1	1	1	1																				
Nantucket	10	7	2	6	7	8	8	6	3	1																																	
New Bedford	197	175	164	181	181	178	176	176	143	130	113	107	116	118	130	132	128	123	111	106	93	85	77	78	74	63	54	51	48	49	43	39	38	32	28	25	25	22	24	23	25	24	24
Newburyport				2	3	3	3																																				
New London, Conn.	16	19	15	18	14	15	15	14	10	10	9	4	4	3	5	3	5	11	9	7	6	5	4	3	3	3	2	2	1	1							1						
New York, N. Y.				1	2	5	5	3	2	2		1	1	1	3	1																												
Norwich, Conn.																																											
Provincetown	25	23	33	45	53	54	49	27	16	19	17	18	19	21	22	23	19	19	16	12	12	11	12	12	9	8	7	7	8	8	9	10	10	10	10	10	6	4	4	4	3	3	1 3
Sag. Harbor, N. Y.	6	8	8	7	7	5	4	3	2	2	1	1																															
Salem	1	1	2	3	4	4	3	3	1																																		
San Francisco†						6	5	8	4	1	1	1	1	2	2	1	3	5	6	9	19	19	21	19	21	23	26	30	30	33	32	30	23	22	21	17	15	13	10	11	14	15	14
Sippican	3	2	2																																								
Stonington, Conn.																																										
Tisbury				1	1	1	1	1							2	2	3	3	3	2	2	2	2	2	2	2	2	1	1	1													
Wellfleet				1	1	1	1																																				
Westport	11	10	9	9	10	10	9	9	9	8	8	5	3	3	4	4	3	2																									

* Falmouth, 1, 1861. Holmes Hole 1, 1864; 1, 1865. Mattapoisett 3, 1864; 2, 1865. Warren, 2, 1864; 1, 1865. Hartford, 1, 1887.

† In 1895 twenty-three vessels out of thirty in San Francisco fleet were steamers.

‡ 1781-1830, compiled from Starbuck's record of Clearances, pp. 180-362. 1845-1885, compiled from Goode, Sec. 5, Vol. 2, p. 171. 1886-1906, compiled from "Whalemen's Shipping List."

² All towns in Massachusetts unless otherwise specified.

TABLE III.

IMPORTS OF WHALE PRODUCTS, 1805–1905.

Year.	Gallons Sperm Oil.	Gallons Whale Oil.	Pounds Whale Bone.	Year.	Gallons Sperm Oil.	Gallons Whale Oil.	Pounds Whale Bone.
1805	412,492	612,895	13,131	1856	80,941	197,890	2,592,700
1806	378,788	741,951	86,544	1857	78,440	230,941	2,058,900
1807	356,548	934,259	72,784	1858	81,941	182,223	1,540,600
1808	362,471	567,095	49,970	1859	91,408	190,411	1,923,850
1809	443,709	587,664	17,092	1860	73,708	140,005	1,337,650
1810	572,271	585,869	41,437	1861	68,932	133,717	1,038,450
1811	844,200	304,825	43,200	1862	55,641	100,487	763,500
1812	429,692	191,079	6,266	1863	65,055	62,974	488,750
1813	111,289	80,860	9,901	1864	64,372	71,863	760,450
1814	108,486	2,573	.....	1865	32,242	76,238	619,350
1815	48,510	4,347	.....	1866	36,663	74,302	920,375
1816	237,479	294,525	796	1867	43,433	89,289	1,001,397
1817	1,028,475	581,836	19,440	1868	47,174	65,575	900,850
1818	586,688	608,031	65,446	1869	47,936	85,011	603,606
1819	671,674	1,204,308	83,843	1870	55,183	72,691	708,365
1820	1,093,302	1,409,846	78,879	1871	41,534	75,152	600,655
1821	1,357,618	1,213,506	62,893	1872	45,201	31,075	193,793
1822	1,351,350	1,619,951	50,799	1873	42,053	40,014	206,396
1823	2,938,351	1,697,440	103,404	1874	32,203	37,782	345,560
1824	3,091,064	1,833,237	133,427	1875	42,617	34,594	372,303
1825	1,924,303	1,666,413	152,534	1876	39,811	33,010	150,628
1826	919,800	1,108,233	79,368	1877	41,119	27,191	160,220
1827	2,958,480	1,119,037	106,225	1878	43,508	33,778	207,259
1828	2,475,176	1,591,790	137,323	1879	41,308	23,334	286,280
1829	2,350,152	2,256,502	563,654	1880	37,614	34,776	464,028
1830	3,482,042	2,831,315	514,991	1881	30,598	31,677	368,322
1831	3,636,738	3,609,774	279,279	1882	29,884	23,371	271,999
1832	2,299,563	5,703,894	442,881	1883	24,595	24,170	254,037
1833	3,289,765	5,153,148	266,432	1884	22,099	24,670	426,968
1834	3,891,573	4,144,833	343,324	1885	24,203	41,586	463,990
1835	5,181,529	3,950,289	965,192	1886	23,312	27,249	352,490
1836	4,200,021	4,301,892	1,028,773	1887	18,873	34,171	585,011
1837	5,329,138	6,389,995	1,753,104	1888	16,265	17,185	334,572
1838[1]	132,356	226,552	2,200,000	1889	18,727	14,247	253,113
1839	142,536	229,783	2,000,000	1890	14,480	17,565	309,700
1840	157,791	207,908	2,000,000	1891	13,015	14,837	297,768
1841	159,304	207,348	2,000,000	1892	12,944	13,382	369,885
1842	165,637	161,041	1,600,000	1893	15,253	8,110	411,315
1843	166,985	206,727	2,000,000	1894	16,333	8,720	278,800
1844	139,594	262,047	2,532,445	1895	16,585	4,009	114,960
1845	157,917	272,730	3,167,142	1896	15,124	4,800	207,850
1846	95,217	207,493	2,276,939	1897	10,050	3,600	178,010
1847	120,753	313,150	3,341,680	1898	12,520	5,295	246,120
1848	107,976	280,656	2,003,000	1899	11,903	3,827	320,100
1849	100,944	248,492	2,281,100	1900	18,525	5,510	207,650
1850	92,892	200,608	2,869,200	1901	14,910	2,930	99,050
1851	99,591	328,483	3,906,500	1902	21,970	4,725	109,980
1852	78,872	84,211	1,259,900	1803	18,109	1,260	74,850
1853	103,077	260,114	5,652,300	1904	17,050	3,750	123,300
1854	76,696	319,837	3,445,200	1905	12,985	1,755	79,900
1855	72,649	184,015	2,707,500				

[1]Barrels, 1838–1905.

1805–1837, Starbuck, p. 600; amounts of oil given in gallons. 1838–1905, "Whalemen's Shipping List;" amounts of oil given in barrels of 31½ gallons each.

TABLE IV.

EXPORTS OF WHALE PRODUCTS, 1795–1905.[1]

Year.	Gallons Sperm Oil.	Gallons[2] Whale Oil.	Pounds Whale Bone.	Year.	Gallons Sperm Oil.	Gallons Whale Oil.	Pounds Whale Bone.
1795	810,524	64,335	410,664	1851	905,778	2,004,886	2,281,931
1796	1,176,650	59,797	308,314	1852	644,765	892,309	1,184,156
1797	582,425	38,221	452,127	1853	1,131,098	321,989	2,825,069
1798	128,758	700,040	62,805	1854	874,535	718,842	2,156,864
1799	114,264	420,949	89,552	1855	958,744	705,492	1,944,809
1800	221,762	204,468	32,636	1856	540,784	646,694	1,982,800
1801	91,684	215,522	23,106	1857	819,081	414,466	2,042,390
1802	28,470	379,976	80,334	1858	896,923	840,127	1,103,301
1803	46,984	550,535	96,802	1859	1,341,025	996,341	1,380,465
1804	5,550	646,505	134,006	1860	1,335,736	939,872	1,068,895
1805	72,624	626,089	21,335	1861	1,518,457	1,009,468	979,231
1806	42,785	826,233	50,544	1862	739,477	2,599,316	796,384
1807	44,339	932,797	104,635	1863	1,034,794	2,055,511	603,186
1808	612	198,019	8,660	1864	45,000	12,000	530,000
1809	51,071	421,282	8,825	1865	20,158	1,660	202,100
1810	63,910	544,734	42,843	1866	10,630	618	521,400
1811	136,249	186,661	30,346	1867	25,147	18,253	717,796
1812	63,216	106,369	8,128	1868	18,619	9,885	707,882
1813	.....	4,979	.....	1869	18,645	3,842	311,605
1814	.....	837	.....	1870	22,773	9,872	347,918
1815	.....	.....	.....	1871	22,156	18,141	387,199
1816[3]	2,756	177,810	.....	1872	24,344	1,528	177,932
1817	11,300	460,888	3,668	1873	16,238	2,153	120,545
1818	208,467	986,252	9,300	1874	18,675	3,300	164,553
1819	75,360	86),112	8,038	1875	22,802	5,424	205,436
1820	9,307	1,262,094	25,202	1876	23,600	10,300	133,400
1821	7,250	1,068,025	16,349	1877	18,047	6,390	70,850
1822	7,610	990,325	.....	1878	32,769	14,371	86,787
1823	18,333	1,453,126	86,474	1879	11,843	7,374	75,715
1824	23,578	1,251,836	60,693	1880	12,283	4,395	171,258
1825	30,548	1,072,615	212,062	1881	15,585	6,457	106,047
1826	35,528	652,401	188,709	1882	13,006	4,421	175,470
1827	78,661	481,180	241,085	1883	13,996	4,543	175,614
1828	297,276	488,468	120,128	1884	5,143	2,343	113,024
1829	140,241	1,237,962	464,225	1885	7,554	5,384	152,748
1830	58,814	1,833,196	404,919	1886	3,118	18,253	184,511
1831	78,159	1,637,534	565,926	1887	4,955	8,205	154,781
1832	48,212	3,605,913	1,044,227	1888	1,345	8,578	230,150
1833	50,392	3,298,872	1,203,176	1889	5,823	440	201,323
1834	60,935	2,614,814	873,983	1890	2,000	4,366	129,933
1835	63,827	2,217,321	270,977	1891	3,218	608	127,920
1836	115,142	2,362,325	731,500	1892	1,787	291	83,869
1837	177,004	3,624,001	1,129,509	1893	1,165	1,064	216,335
1838	166,805	4,824,376	1,634,570	1894	1,720	276	147,667
1839	86,047	1,482,908	1,445,098	1895	1,225	825	228,629
1840	434,608	4,520,878	1,892,259	1896	215	500	230,627
1841	349,393	4,094,924	1,271,363	1897	280	422	159,722
1842	287,761	3,909,728	918,280	1898	1,952	675	90,541
1843	476,688	2,479,916	898,773	1899	550	.	163,447
1844	451,317	4,104,504	1,149,607	1900	1,100	500	204,652
1845	1,054,301	4,505,662	2,084,019	1901	. . . . .	. . . . .	208,195
1846	777,019	2,652,874	1,697,892	1902	470	400	130,959
1847	795,792	3,189,562	2,031,137	1903	.	.	64,706
1848	206,431	1,607,038	1,054,379	1904	.	.	49,130
1849	526,817	2,783,480	1,198,250	1905	..	.	83,613
1850	730,743	1,470,197	1,981,231				

NOTE.—In some years it will be observed that the exports exceed the total imports for that year. This apparent discrepancy in figures is accounted for by the fact that the exports of many years are made up largely from the accumulated stocks on hand from previous years.

[1] 1795–1802, Starbuck, p. 700–701. 1802–1905, "Whalemen's Shipping List."

[2] Includes other fish oils up to 1802.

[3] 1816–1842, Sept. 30, to Oct. 1. 1842–1862, July to July. 1862 date, January to January.

TABLE V.

AVERAGE ANNUAL PRICES OF OIL (PER GALLON) AND BONE (PER POUND), 1804–1905 [1]

Year.	Sperm Oil.	Whale Oil.	Bone.	Year.	Sperm Oil.	Whale Oil.	Bone.
1804	$1.40	$0.50	$0.08	1855	$1.77½	$0.71⅞	$0.45¼
1805	.96	.50	.10	1856	1.62	.79½	.58
1806	.80	.50	.07	1857	1.28⅝	.73½	.96¾
1807	1.00	.50	.07	1858	1.21	.54	.92½
1808	.80	.44	.07	1859	1.36½	.48⅝	.88
1809	.60	.44	.08	1860	1.41½	.49⅝	.80¼
1810	.75	.40	.08	1861	1.31⅝	.44¼	.66
1811	1.25	.40	.09	1862	1.42½	.59¼	.82
1812	1.00	.50	.10	1863	1.61	.95½	1.53
1813	1.25	.50	.10	1864	1.78	1.28	1.80
1814	1.25	1.40	.....	1865	2.25	1.45	1.71
1815	1.00	.83	.....	1866	2.55	1.21	1.37
1816	1.12½	.65	.12	1867	2.23½	.73½	1.17½
1817	.72	.60	.12	1868	1.92	.82	1.02½
1818	.90	.50	.10	1869	1.78	1.01¾	1.24
1819	.83	.35	.10	1870	1.35½	.67½	.85
1820	.93½	.35	.10	1871	1.35	.60	.70 [2]
1821	.67½	.33	.12	1872	1.45½	.65½	1.28½
1822	.65	.32	.12	1873	1.48	.62	1.08
1823	.43	.32	.13	1874	1.59	.60¼	1.10
1824	.45½	.30	.13	1875	1.60½	.65¼	1.12½ [2]
1825	.70½	.32	.15	1876	1.40½	.61	2.14 [3]
1826	.75	.30	.16	1877	1.13	.52	2.50 [3]
1827	.72½	.30	.18	1878	.91½	.44	2.46 [3]
1828	.62½	.26	.25	1879	.84½	.39	2.34
1829	.61⅝	.26	.25	1880	.99	.51	2.00
1830	.65½	.39	.20	1881	.88	.48	1.63
1831	.71	.30	.17	1882	1.06	.53½	1.71
1832	.85	.23½	.13	1883	.97	.54	2.87
1833	.85	.26	.13	1884	.85	.56	3.55
1834	.72½	.27½	.21	1885	.82	.45	2.68
1835	.84	.39	.21	1886	.74½	.33	2.73
1836	.89	.44	.25	1887	.66	.32	3.12
1837	.82½	.35	.20	1888	.62	.35	2.78
1838	.86	.32	.20	1889	.65⅜	.38	3.50
1839	1.05	.36	.18	1890	.65	.42	4.22
1840	1.00	.30	.19	1891	.69	.47	5.38
1841	.94	.32	.20	1892	.67½	.42½	5.35
1842	.73	.34	.23	1893	.73½	.42½	3.08
1843	.63	.34	.36	1894	.56	.32½	2.95
1844	.90⅝	.36½	.40	1895	.48	.28	2.83
1845	.88	.33	.34	1896	.40	.35	3.95
1846	.87⅛	.33⅞	.34	1897	.46	.37	3.50
1847	1.00⅜	.36	.31	1898	.53	.34	3.10
1848	1.00	.33	.25	1899	.49	.35	2.70
1849	1.08⅞	.39½	.21⅝	1900	.52½	.37	2.50
1850	1.20⅞	.49⅛	.32⅝	1901	.56	.38	2.65
1851	1.27¼	.45⅛	.34½	1902	.66	.37	4.20
1852	1.23¾	.68½	.50⅝	1903	.56	.38	5.25
1853	1.24¾	.58½	.34½	1904	.52	.36	5.80
1854	1.48¼	.59⅝	.39⅜	1905	.46	.31	4.90

[1] 1804–1843, Starbuck; p. 660. 1843–1905, "Whalemen's Shipping List."

[2] Gold.

[3] Currency.

TABLE VI.

NUMBER OF VESSELS IN THE NORTH PACIFIC AND SAN FRANCISCO FLEETS, 1835–1905.[1]

Year.	North Pacific.	San Francisco.	Tonnage of San Francisco Fleet.	Year.	North Pacific.	San Francisco.	Tonnage of San Francisco Fleet.
1835	1	..	..	1871	35	8	2,015
1836	1	..	..	1872	27	4	617
1837	1	..	..	1873	30	1	245
1838	1	..	..	1874	23	1	245
1839	2	..	..	1875	16	1	245
1840	3	..	..	1876	17	1	245
1841	20	..	..	1877	19	2	505
1842	29	..	..	1878	17	2	505
1843	108	..	..	1879	21	1	260
1844	170	..	..	1880	19	3	630
1845	263	..	..	1881	23	5	1,129
1846	292	..	..	1882	32	6	1,490
1847	177	..	..	1883	38	9	2,845
1848	159	..	..	1884	39	19	6,103
1849	155	..	..	1885	44	19	5,965
1850	144	..	..	1886	58	21	6,415
1851	138	..	..	1887	28	19	5,872
1852	278	..	..	1888	41	21	6,480
1853	238	..	..	1889	48	23	6,989
1854	232	..	..	1890	49	26	7,375
1855	217	..	..	1891	46	30	8,005
1856	178	..	..	1892	48	30	8,024
1857	143	..	..	1893	46	33	8,502
1858	196	..	..	1894	35	32	8,901
1859	176	..	..	1895	31	30	8,068
1860	121	..	..	1896	29	23	6,673
1861	76	..	..	1897	27	22	6,498
1862	32	..	..	1898	23	21	6,151
1863	42	..	..	1899	21	17	4,795
1864	68	..	..	1900	17	15	4,608
1865	59	..	..	1901	18	13	3,673
1866	95	..	..	1902	17	10	2,778
1867	90	..	..	1903	20	11	3,128
1868	61	..	..	1904	21	14	3,593
1869	43	6	1,414	1905	20	14	3,626
1870	46	5	1,251				

[1] Compiled from "Whalemen's Shipping List," 1843–1906.

TABLE VII.

IMPORTATIONS OF OIL AND BONE AT NEW BEDFORD AND SAN FRANCISCO, 1860–1905.[1]

Year.	New Bedford.			San Francisco.		
	Barrels Sperm Oil.	Barrels Whale Oil.	Pounds Bone.	Barrels Sperm Oil.	Barrels Whale Oil.	Pounds Bone.
1869	32,673	54,566	471,495	45	1,657	21,336
1870	42,886	49,563	569,861	.....	4,013	66,000
1871	30,654	55,710	560,993	.....	.....	.....
1872	33,021	15,573	177,868	320	.....	.....
1873	30,229	25,757	150,598	.....	.....	.....
1874	25,480	26,340	321,637	.....	.....	.....
1875	34,430	25,067	359,973	315	1,200	10,045
1876	30,234	20,535	93,484	.....	675	10,400
1877	27,916	11,636	130,585	1,301	4,520	14,462
1878	39,042	18,152	179,312	.....	.....	.....
1879	34,890	18,147	251,737	.....	.....	.....
1880	30,169	21,017	368,112	.....	.....	.....
1881	27,021	23,954	332,407	.....	.....	.....
1882	21,276	16,236	242,099	.....	.....	.....
1883	17,403	12,272	107,237	.....	.....	.....
1884	16,563	6,355	123,675	189	12,563	235,293
1885	19,216	11,062	21,190	365	24,467	441,400
1886	18,615	4,904	27,410	650	20,265	323,180
1887	13,565	2,503	15,370	880	29,870	561,694
1888	10,234	921	8,812	964	15,720	320,132
1889	12,382	1,416	23,893	610	11,735	225,050
1890	11,109	2,075	10,885	584	15,217	291,694
1891	8,280	1,248	5,360	875	12,915	289,850
1892	7,615	1,632	6,800	845	11,610	362,950
1893	11,256	1,540	8,375	1,370	6,570	402,940
1894	12,878	1,545	12,100	1,025	7,175	266,700
1895	9,577	1,229	.....	2,095	2,560	110,980
1896	11,744	440	19,000	2,460	4,360	188,850
1897	6,630	110	29,000	2,610	3,430	139,500
1898	6,745	2,140	3,620	4,290	2,975	224,800
1899	6,123	372	19,500	2,780	3,455	291,400
1900	11,205	2,725	11,650	4,090	2,735	195,500
1901	7,630	60	22,500	4,100	2,870	76,550
1902	15,035	3,150	17,980	5,995	1,575	92,000
1903	12,029	465	3,000	5,610	795	65,150
1904	12,280	210	5,300	4,540	2,470	102,000
1905	10,810	825	15,000	1,075	805	38,200

[1] From "Whalemen's Shipping List." Annual reviews of the Whale Fishery.

TABLE VIII.[1]

NUMBER OF VESSELS IN NANTUCKET FLEET AND ANNUAL PRODUCT FROM 1762–1772.

Year.	Number of Vessels.	Barrels of Oil.	Year.	Number of Vessels.	Barrels of Oil.
1762	78	9,440	1768	125	15,439
1763	60	9,238	1769	119	19,140
1764	72	11,983	1770	125	14,331
1765	101	11,512	1771	115	12,754
1766	118	11,969	1772	98	7,825
1767	108	16,561			

[1] Macy, p. 65.

TABLE IX.[1]

AVERAGE NUMBER OF VESSELS AND ANNUAL IMPORTS OF THE MASSACHUSETTS WHALING FLEETS, 1771–1775.

	Vessels Fitted.				Barrels Sperm Oil.	Barrels Whale Oil.
	Northern Fishery.		Southern Fishery.			
	Vessels.	Tons.	Vessels.	Tons.		
Nantucket	65	4,875	85	10,200	26,000	4,000
Wellfleet	20	1,600	10	1,600	2,250	1,250
Dartmouth	60	4,500	20	2,000	7,200	1,400
Lynn	1	75	1	120	200	100
Martha's Vineyard	12	720	..	.....	900	300
Barnstable	2	150	..	.....	240	.....
Boston	15	1,300	5	700	1,800	600
Cape Cod	4	300	..	.....	400	.....
Swanzey	4	300	..	...	400	....

[1] Starbuck, p. 57.

TABLE X.[1]

AVERAGE NUMBER OF VESSELS AND ANNUAL IMPORTS OF THE MASSACHUSETTS WHALING FLEETS, 1787–1789

	Number of Vessels.		Barrels Sperm Oil.	Barrels Whale Oil.
	Northern Fishery.	Southern Fishery.		
Nantucket	18	18	3,800	8,260
Wellfleet and Cape Cod	12	4	.....	1,920
Dartmouth and New Bedford	45	5	2,700	1,750
Cape Ann	.....	2	.....	1,200
Plymouth	1	.....	100	.....
Martha's Vineyard	2	1	220	.....
Boston	6	.....	360	.....
Dorchester and Wareham	7	1	800	.....

[1] Scammon, p. 200

APPENDIX II.

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